

## File Names

12:00 Monday, March 21, 2005 1

File #	Original File Name
1	PAC2001_SMMT_J-R_AROM-ACIDS-CASCADE_20010825D6_V1.csv



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## Dataset Key Phrases

Data Exchange Standard Version	Principal Investigator Name--last first	Principal Investigator Affiliation	File Contents Description--short long	Sampling Interval As Reported in Main Table	Sampling Frequency Of Data in Main Table	Quality Control Level	Organization Acronym	Organization Name	Data Usage Acknowledgement			Study Or Network Acronym	Study Or Network Name
NARSTO 2002/05/28 (2.301)	Rudolph ; Dr. Jochen	Centre for Atmospheric Chemistry, York University	phenol_arom_alpha ; Aromatic organic acids, phenol and aliphatic acids measurements	Grab	Variable interval	1	YORKU	York University	Dr. Jochen Rudolph. Centre For Atmospheric Chemistry, York University, Steacie Building room 006. 4700 Keele St., Toronto M3J 1P3			PAC2001	Pacific 2001

Country Code	State Or Province Code	Principal Investigator Contact Information	Co-investigator Name--last first	Co-investigator Affiliation	Name And Affiliation Of Person Who Generated This File	Date Of Last Modification To Data In Main Table	Software Used To Create This File	Companion File Name format And Version	Date This File Generated archive Version Number
CA (CANADA)	BC	Dr. Jochen Rudolph. Centre For Atmospheric Chemistry, York University, Steacie Building room 006. 4700 Keele St., Toronto M3J 1P3	Gao ; Shidong	Centre for Atmospheric Chemistry, York University	Caroline How, Centre for Atmospheric Chemistry, York University	2002/05/22	MS Excel /2000	None ; 0	2004/10/29 ; 1

Table Explanation Of Zero Or Negative Values	Table Explanation Of Reported Detection Limit Values	Table Explanation Of Reported Uncertainty	Table User Note	Table User Note2	Table User Note3	Table User Note4	Table Name	Table Focus
Filter blanks had levels of benzoate, formate and lactate often exceeding those found in aerosol samples, giving negative values for this compound after blank correction	Values below the detection limits have been replaced by the analytical detection limit and flaggedV7	Uncertainty values are given as a fixed percentage of the measured values for each compound. Please see TABLE COLUMN USER NOTE 2 for percentage	Cascade for sumas				phenol_arom_alpha	Surface--fixed



## Site Information

Site ID	Name	State Province code	Latitude: decimal degree	Longitude: decimal degree	Sampling height above ground (m)	Ground elevation above sea level (m)	Site land use	Site location setting	Measurement start date	Measurement end date	Co-incident measurements	Study site ID	Lat lon accuracy
PC01CABCSMMT	Sumas	BC	49.05166	-122.24700	3.0	305.0	Forest	Rural	2001/08/25	2001/08/30	None	SMMT	15



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## NARSTO Standard Flags

Flag: NARSTO	Description
H1	Historical data that have not been assessed or validated
	Historical data that have not been assessed or validated
	Historical data that have not been assessed or validated
M1	Missing value because no value is available
	Missing value because no value is available
	Missing value because no value is available
M2	Missing value because invalidated by data originator
	Missing value because invalidated by data originator
	Missing value because invalidated by data originator
V0	Valid value
	Valid value
	Valid value
V1	Valid value but comprised wholly or partially of below detection limit data
	Valid value but comprised wholly or partially of below detection limit data
	Valid value but comprised wholly or partially of below detection limit data
V2	Valid estimated value
	Valid estimated value
	Valid estimated value
V3	Valid interpolated value
	Valid interpolated value
	Valid interpolated value
V4	Valid value despite failing to meet some QC or statistical criteria
	Valid value despite failing to meet some QC or statistical criteria
	Valid value despite failing to meet some QC or statistical criteria
V5	Valid value but qualified because of possible contamination (e.g., pollution source, laboratory contamination source)
	Valid value but qualified because of possible contamination (e.g., pollution source, laboratory contamination source)
	Valid value but qualified because of possible contamination (e.g., pollution source, laboratory contamination source)
V6	Valid value but qualified due to non-standard sampling conditions (e.g., instrument malfunction, sample handling)
	Valid value but qualified due to non-standard sampling conditions (e.g., instrument malfunction, sample handling)
	Valid value but qualified due to non-standard sampling conditions (e.g., instrument malfunction, sample handling)



## NARSTO Standard Flags

Flag: NARSTO	Description
V7	Valid value but set equal to the detection limit (DL) because the measured value was below the DL
	Valid value but set equal to the detection limit (DL) because the measured value was below the DL
	Valid value but set equal to the detection limit (DL) because the measured value was below the DL

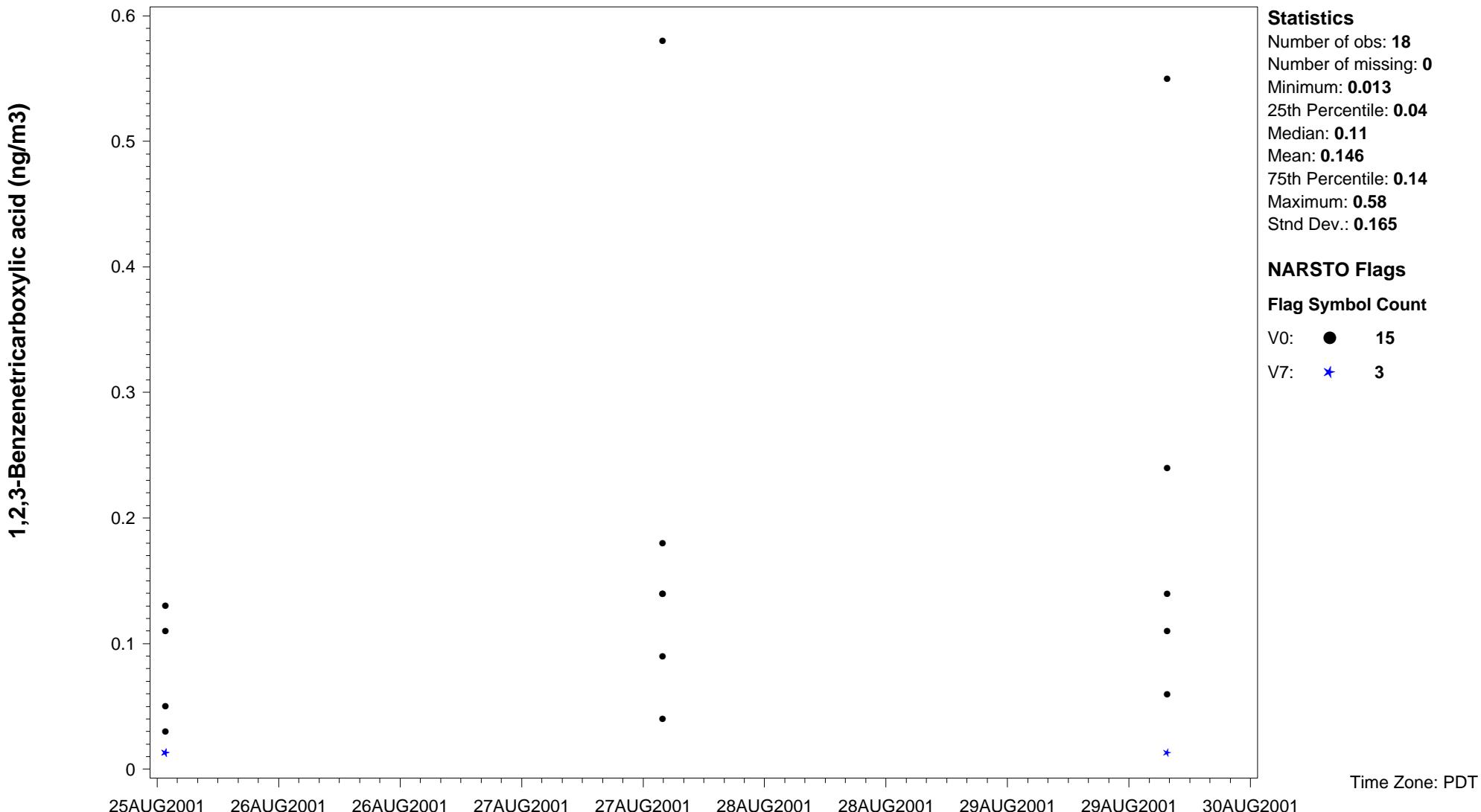


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **1,2,3-Benzenetricarboxylic acid** Common Name: **1,2,3-Benzenetricarboxylic acid** Units: **ng/m<sup>3</sup>**  
 Sampling interval: **Grab** CAS ID: **C569-51-7** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.013**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

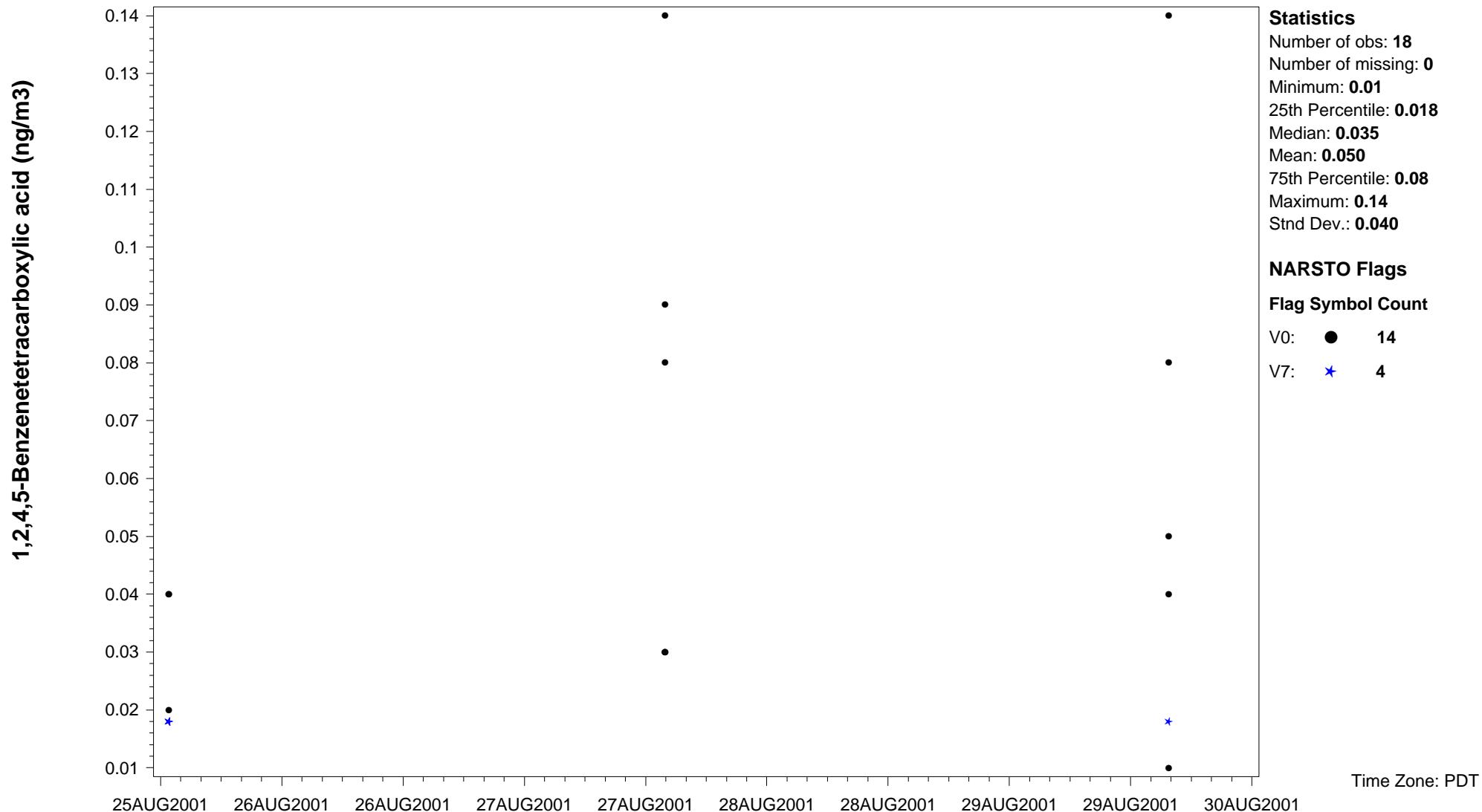


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **1,2,4,5-Benzenetetracarboxylic acid** Common Name: **1,2,4,5-Benzenetetracarboxylic acid** Units: **ng/m<sup>3</sup>**  
 Sampling interval: **Grab** CAS ID: **C89-05-4** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.018**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

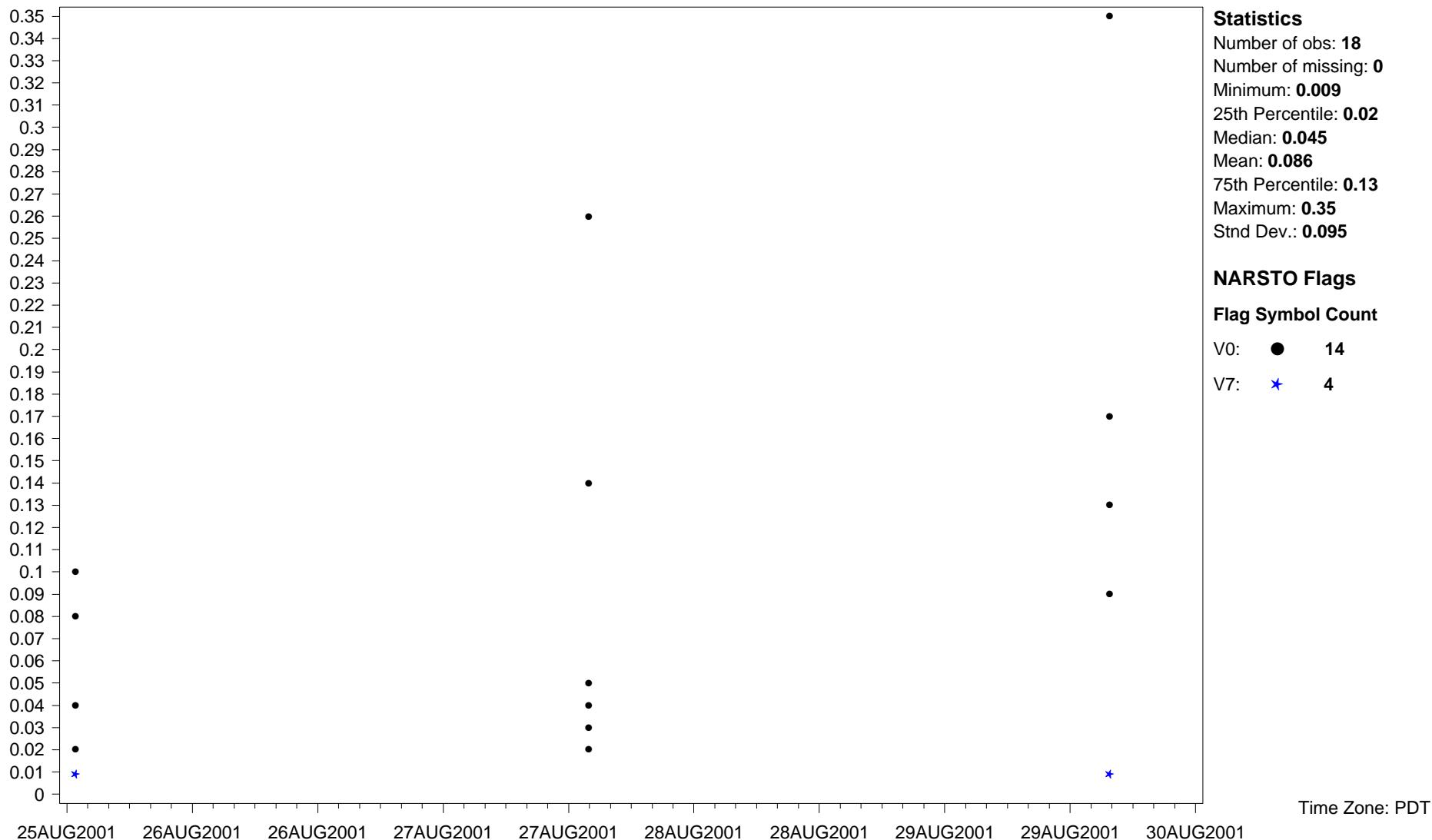


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **1,2,4-Benzenetricarboxylic acid** Common Name: **1,2,4-Benzenetricarboxylic acid** Units: **ng/m<sup>3</sup>**  
 Sampling interval: **Grab** CAS ID: **C528-44-9** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.009**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

1,2,4-Benzenetricarboxylic acid (ng/m<sup>3</sup>)**Statistics**

Number of obs: **18**  
 Number of missing: **0**  
 Minimum: **0.009**  
 25th Percentile: **0.02**  
 Median: **0.045**  
 Mean: **0.086**  
 75th Percentile: **0.13**  
 Maximum: **0.35**  
 Stnd Dev.: **0.095**

**NARSTO Flags**

**Flag Symbol Count**

Flag	Symbol	Count
V0	●	14
V7	★	4

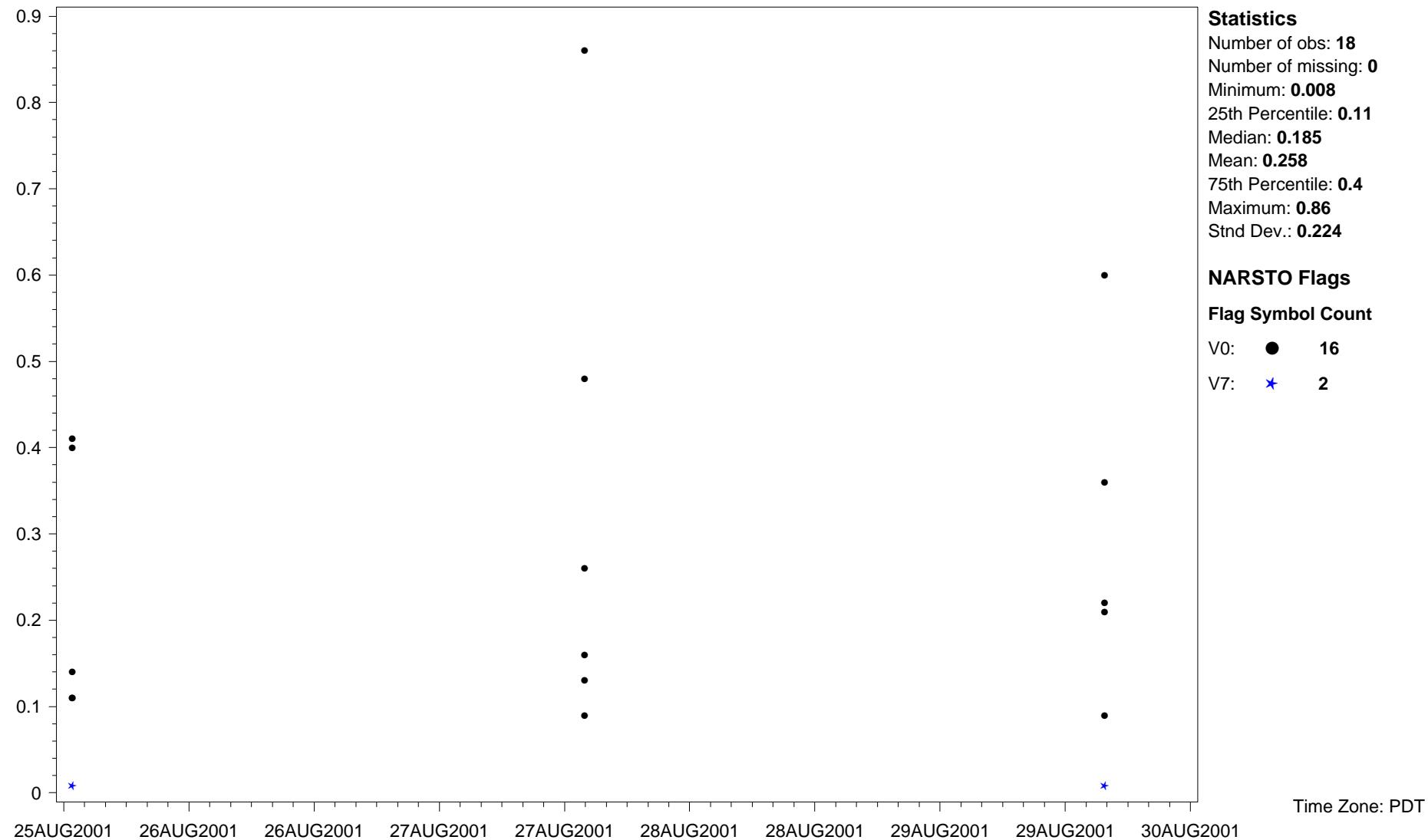


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **1,2-Benzenedicarboxylic acid** Common Name: **Phthalic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C88-99-3**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.008**

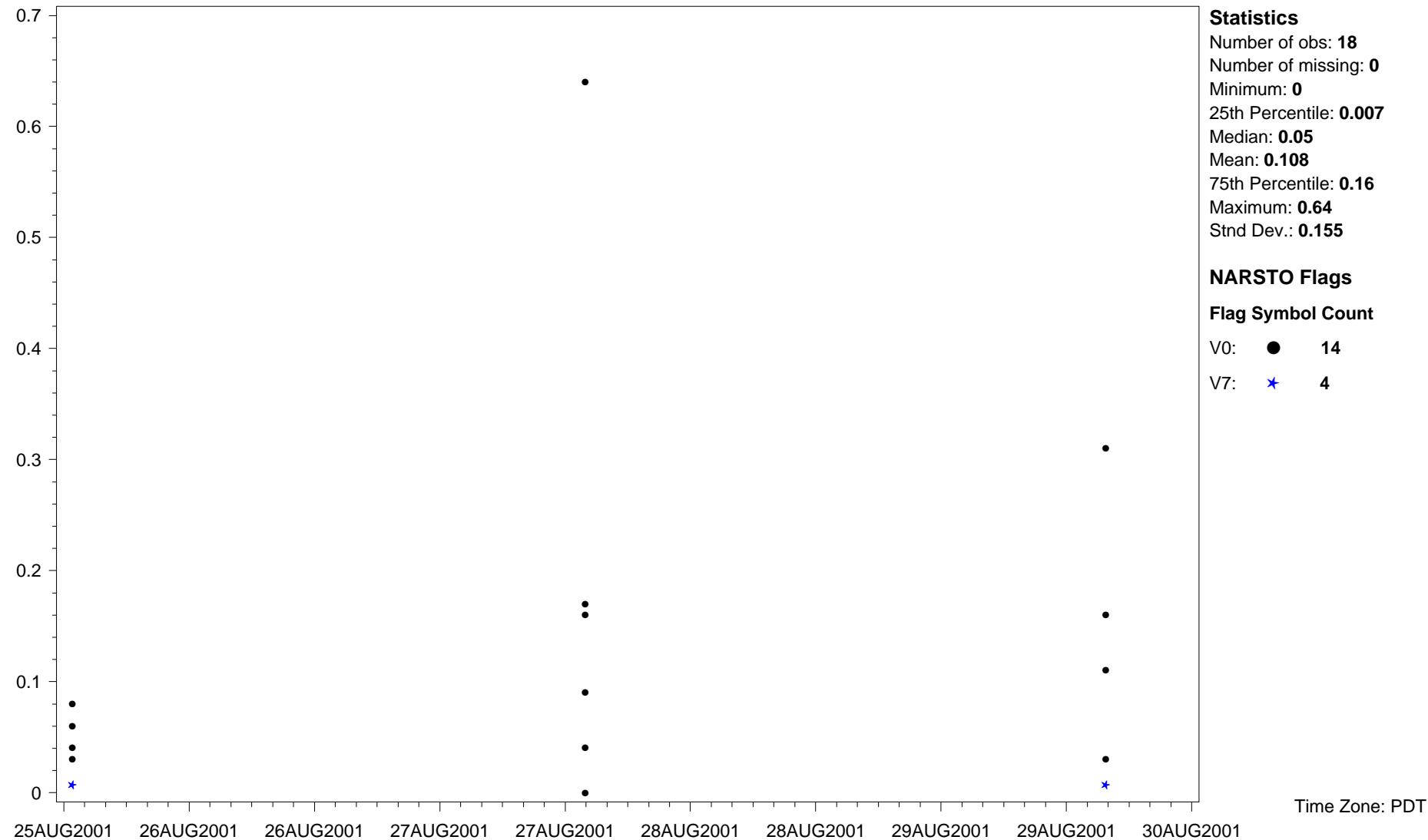
Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

1,2-Benzenedicarboxylic acid (ng/m<sup>3</sup>)

Site ID: **PC01CABCSMMT** Variable name: **1,2-Benzenedicarboxylic acid, monomethyl ester** Common Name: **Methyl hydrogen phthalate** Units: **ng/m<sup>3</sup>**  
 Sampling interval: **Grab** CAS ID: **C4376-18-5** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.007**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

1,2-Benzenedicarboxylic acid, monomethyl ester (ng/m<sup>3</sup>)

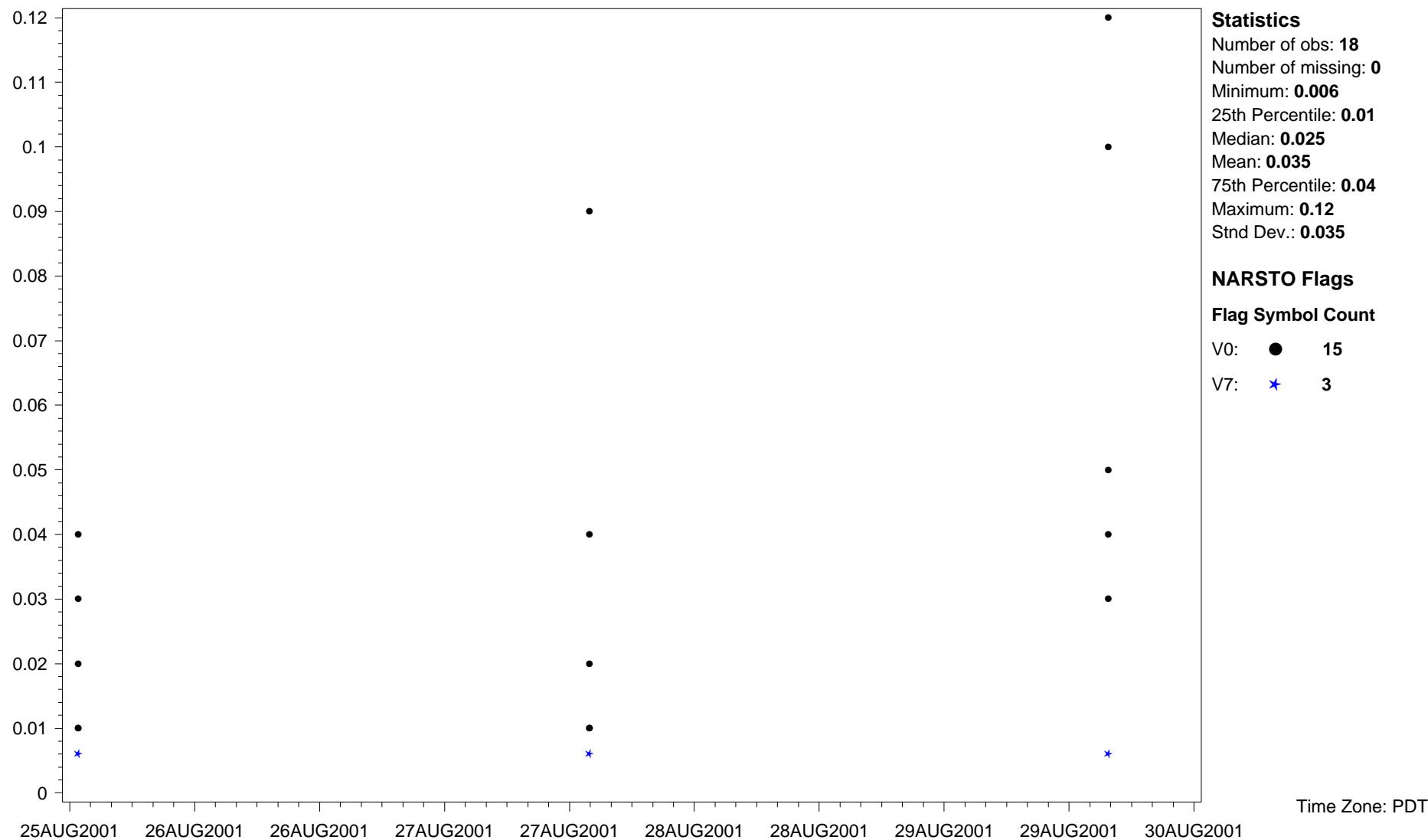


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **1,3-Benzenedicarboxylic acid** Common Name: **Isophthalic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C121-91-5**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.006**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

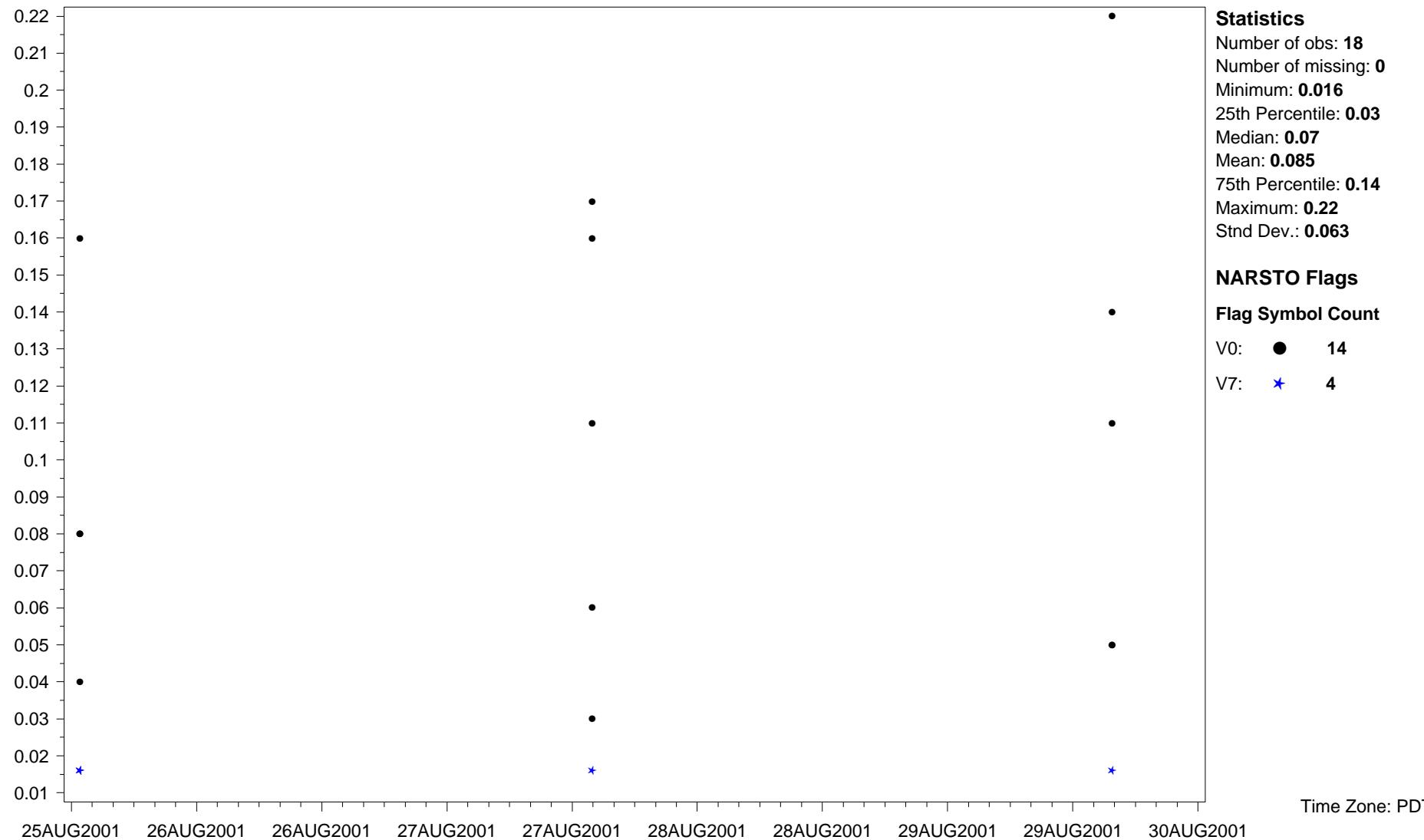
1,3-Benzenedicarboxylic acid (ng/m<sup>3</sup>)

## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **1,4-Benzenedicarboxylic acid** Common Name: **Terephthalic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab**  
 CAS ID: **C100-21-0** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **239**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.016**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

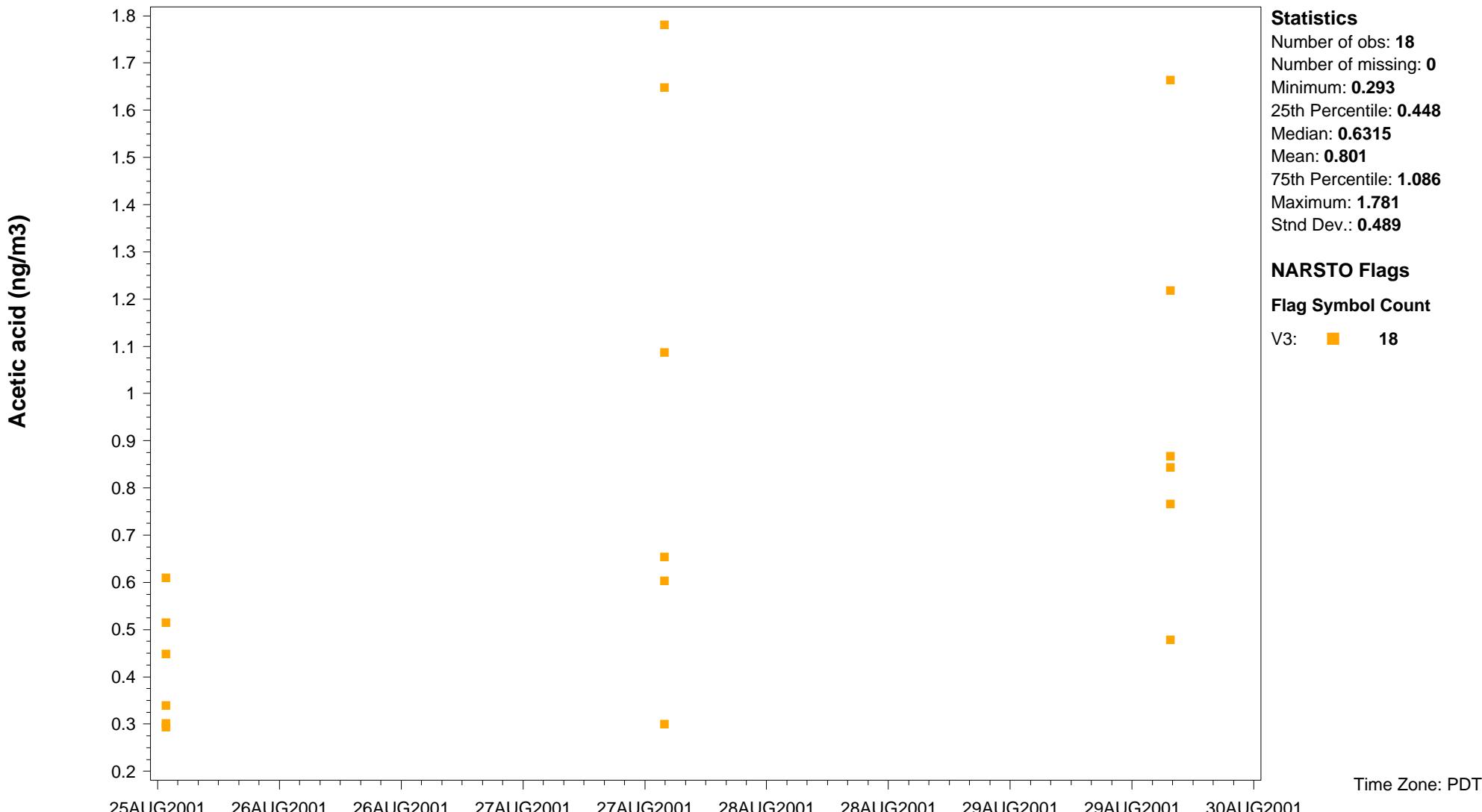
1,4-Benzenedicarboxylic acid (ng/m<sup>3</sup>)

## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Acetic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C64-19-7** Observation type: **Particles**  
 Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
 Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.027**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

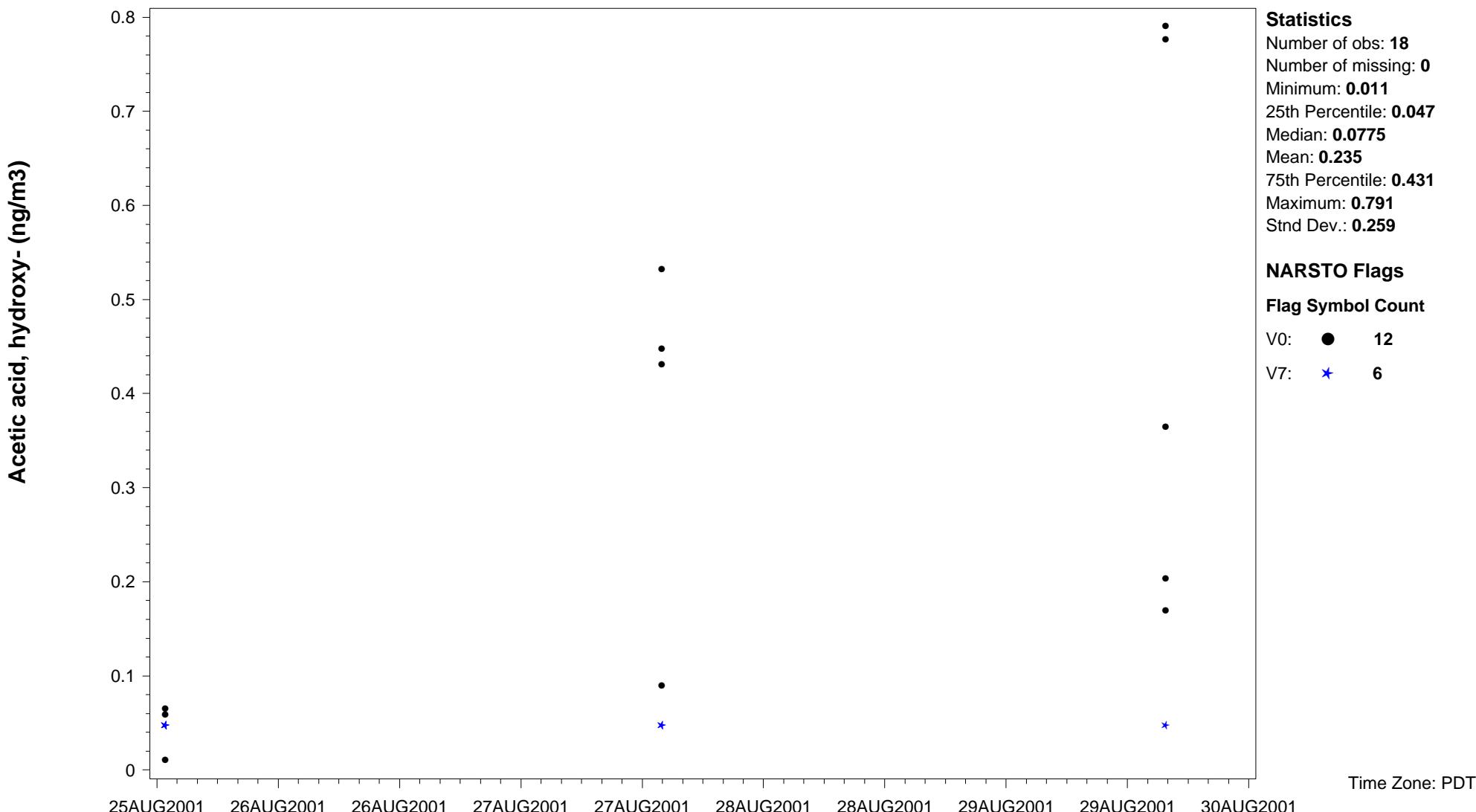


## NAtChem Time Series Plot

21MAR2005

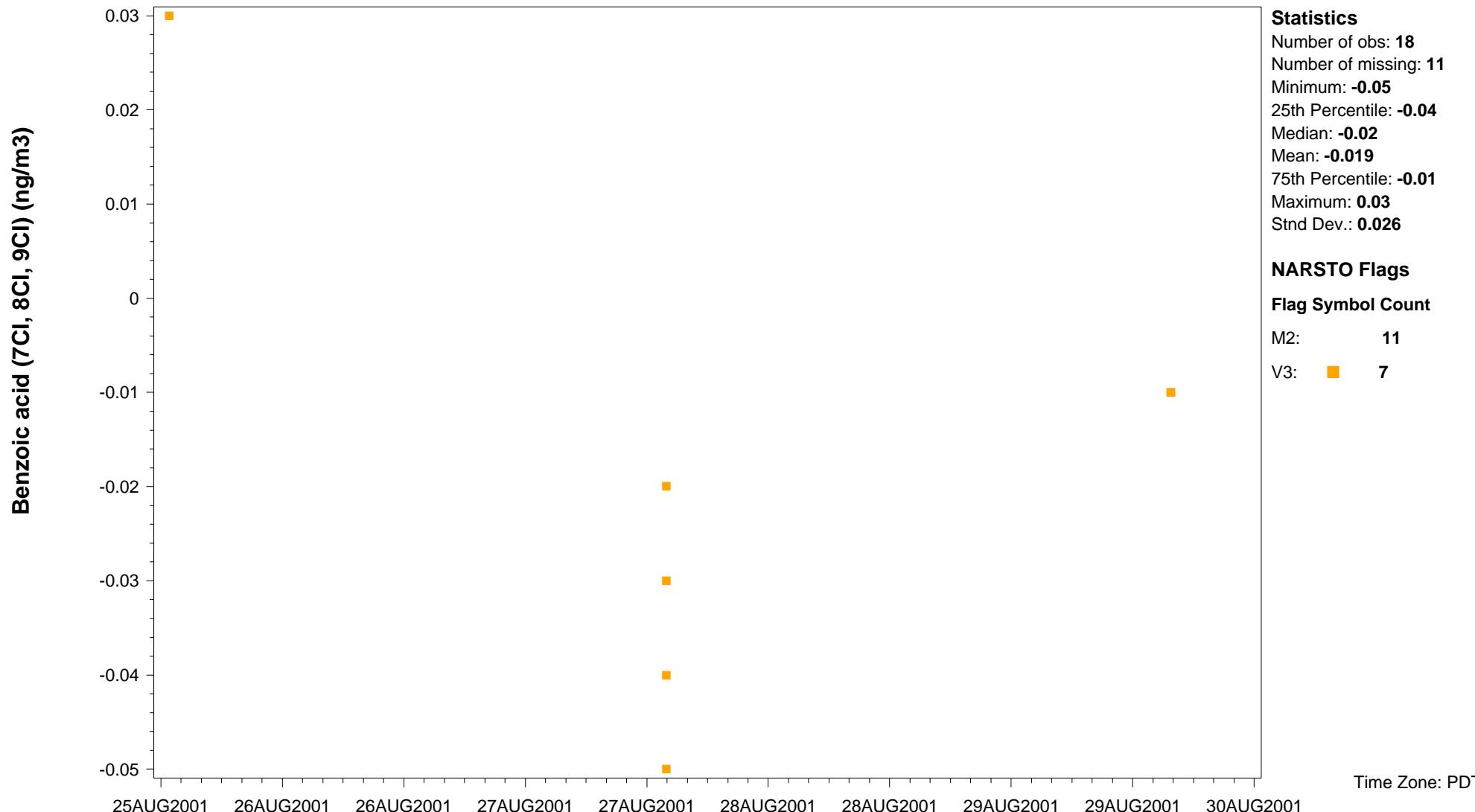
Site ID: **PC01CABCSMMT** Variable name: **Acetic acid, hydroxy-** Common Name: **Glycolic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C79-14-1**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.047**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**



Site ID: **PC01CABCSMMT** Variable name: **Benzoic acid (7Cl, 8Cl, 9Cl)** Common Name: **Benzoic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C65-85-0**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **192**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.129**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

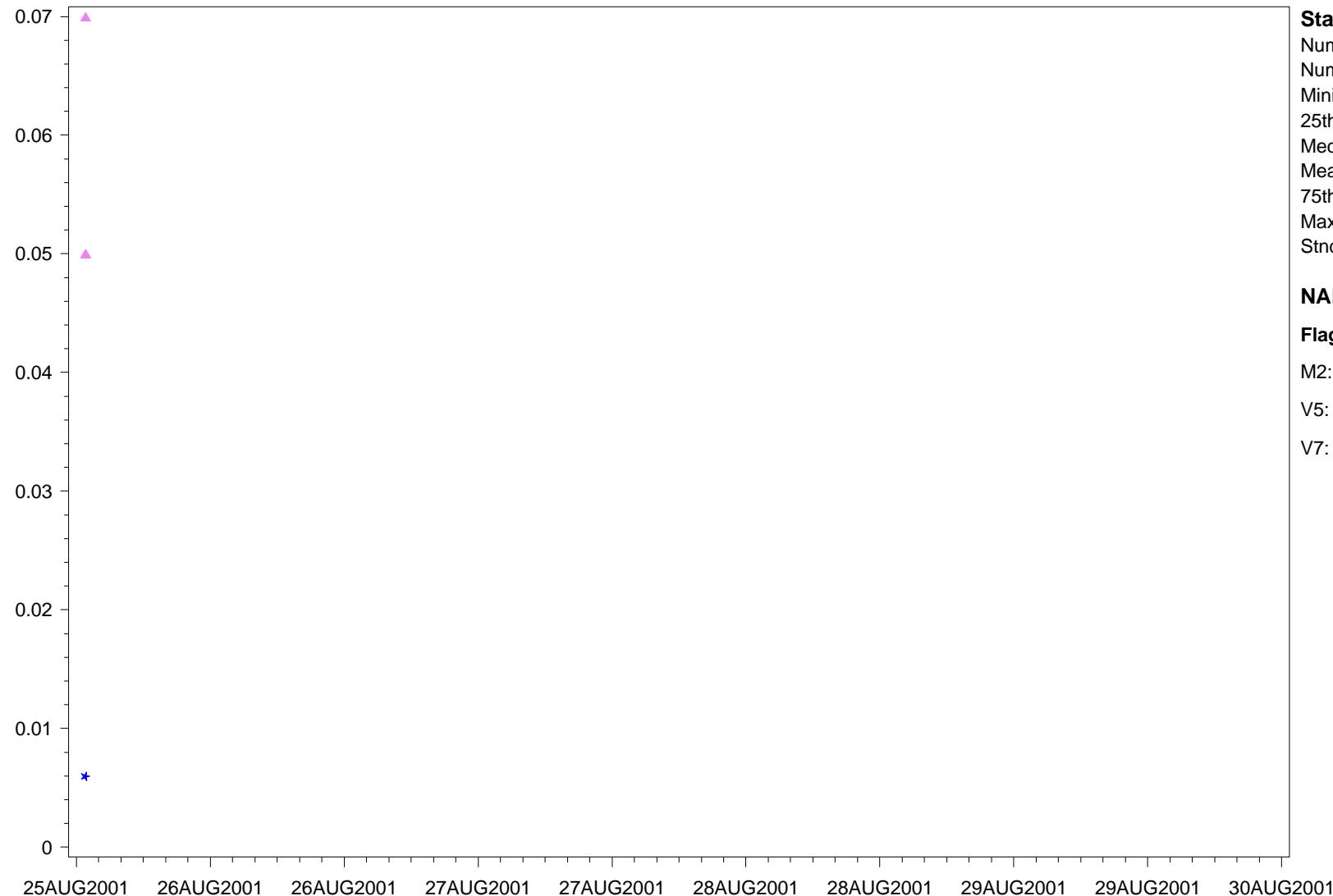


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Benzoic acid, 2-hydroxy-** Common Name: **Benzoic acid, 2-hydroxy-** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab**  
 CAS ID: **C69-72-7** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.006**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Benzoic acid, 2-hydroxy- (ng/m<sup>3</sup>)**Statistics**

Number of obs: **18**  
 Number of missing: **12**  
 Minimum: **0.006**  
 25th Percentile: **0.006**  
 Median: **0.028**  
 Mean: **0.031**  
 75th Percentile: **0.05**  
 Maximum: **0.07**  
 Stnd Dev.: **0.029**

**NARSTO Flags**

**Flag Symbol Count**

M2:	12
V5:	▲ 3
V7:	* 3

Time Zone: PDT

File Name:

NATCHEM\_PAC2001\_SMMT\_J-R\_AROM-ACIDS-CAS0187\_2001082516 Atmospheric Science Data Center

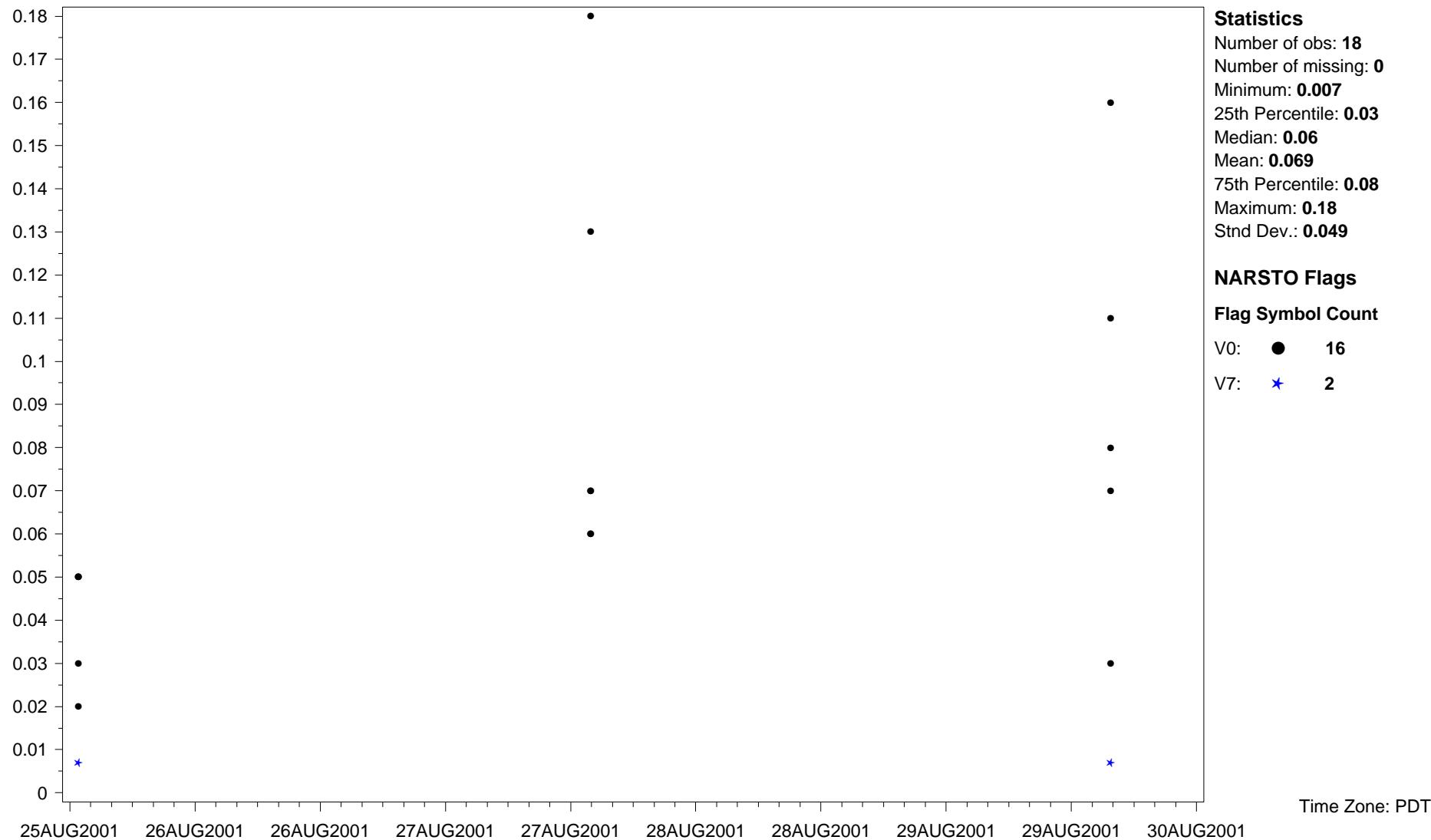
<http://eosweb.larc.nasa.gov>

## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Benzoic acid, 3-hydroxy-** Common Name: **Benzoic acid, 3-hydroxy-** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab**  
 CAS ID: **C99-06-9** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **199**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.007**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

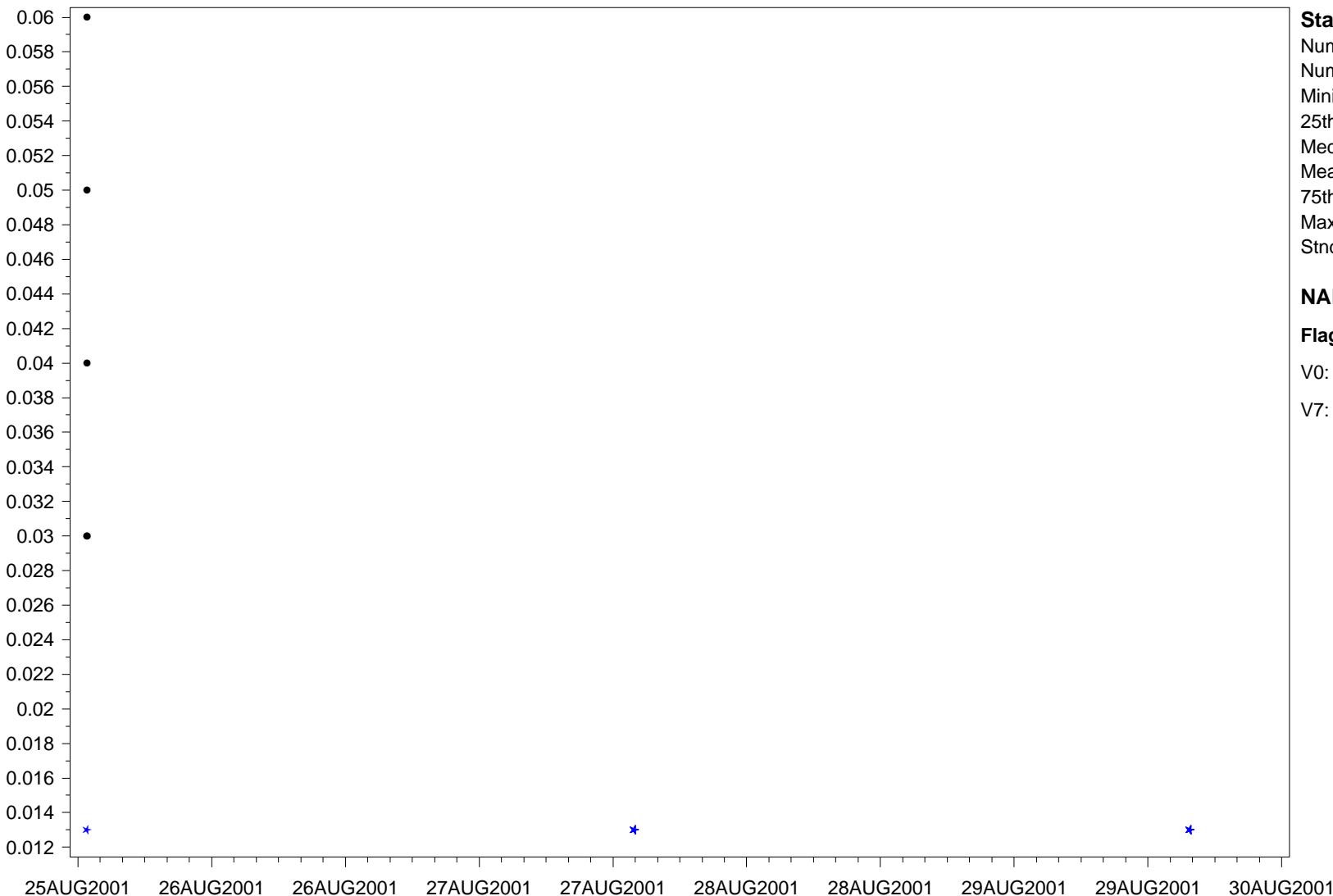
Benzoic acid, 3-hydroxy- (ng/m<sup>3</sup>)

## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Benzoic acid, 4-hydroxy-** Common Name: **Benzoic acid, 4-hydroxy-** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab**  
 CAS ID: **C99-96-7** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **280**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.013**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Benzoic acid, 4-hydroxy- (ng/m<sup>3</sup>)**Statistics**

Number of obs: **18**  
 Number of missing: **0**  
 Minimum: **0.013**  
 25th Percentile: **0.013**  
 Median: **0.013**  
 Mean: **0.021**  
 75th Percentile: **0.03**  
 Maximum: **0.06**  
 Stnd Dev.: **0.015**

**NARSTO Flags****Flag Symbol Count**

V0: ● 5  
 V7: \* 13

Time Zone: PDT

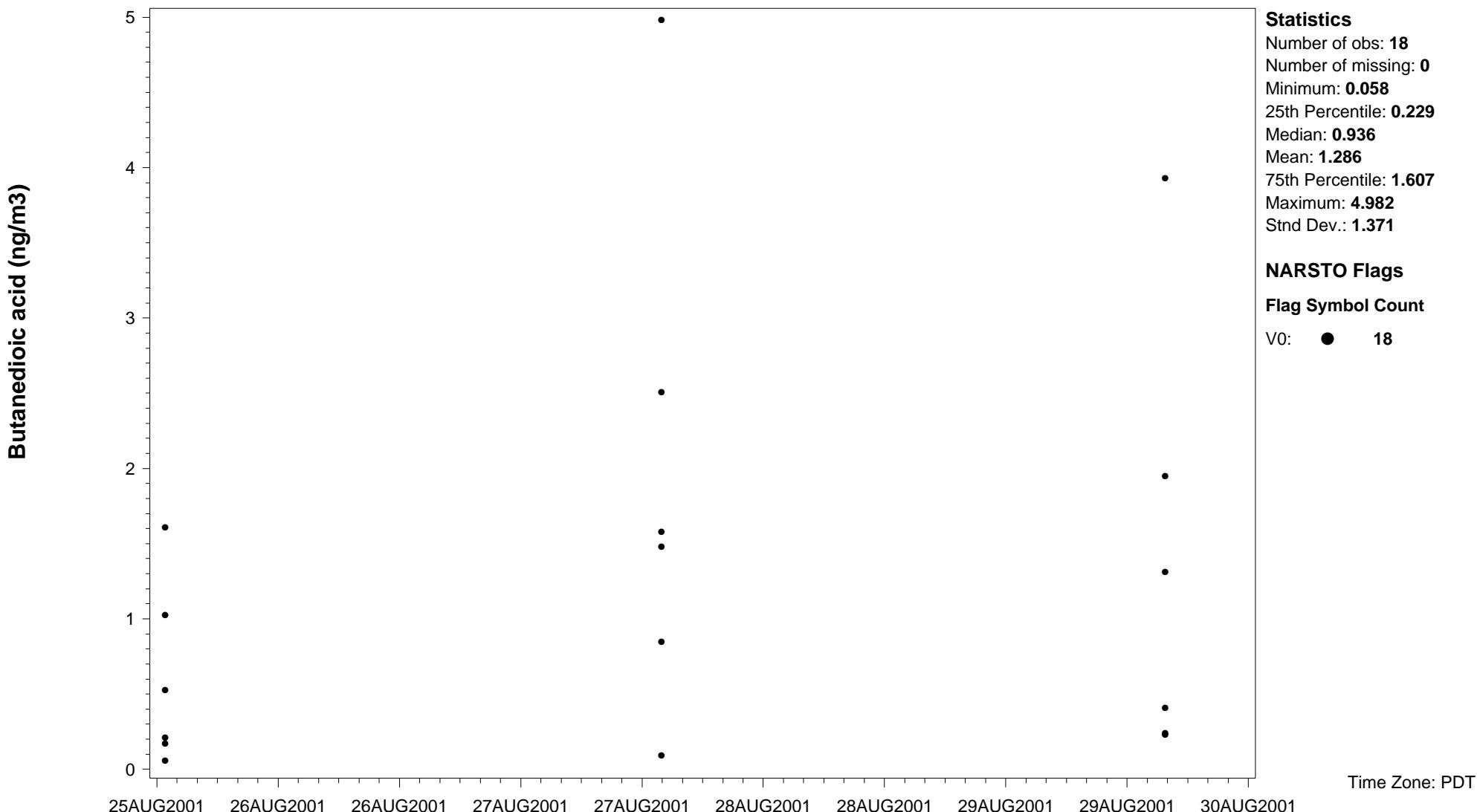


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Butanedioic acid** Common Name: **Succinic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C110-15-6**  
Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.054**

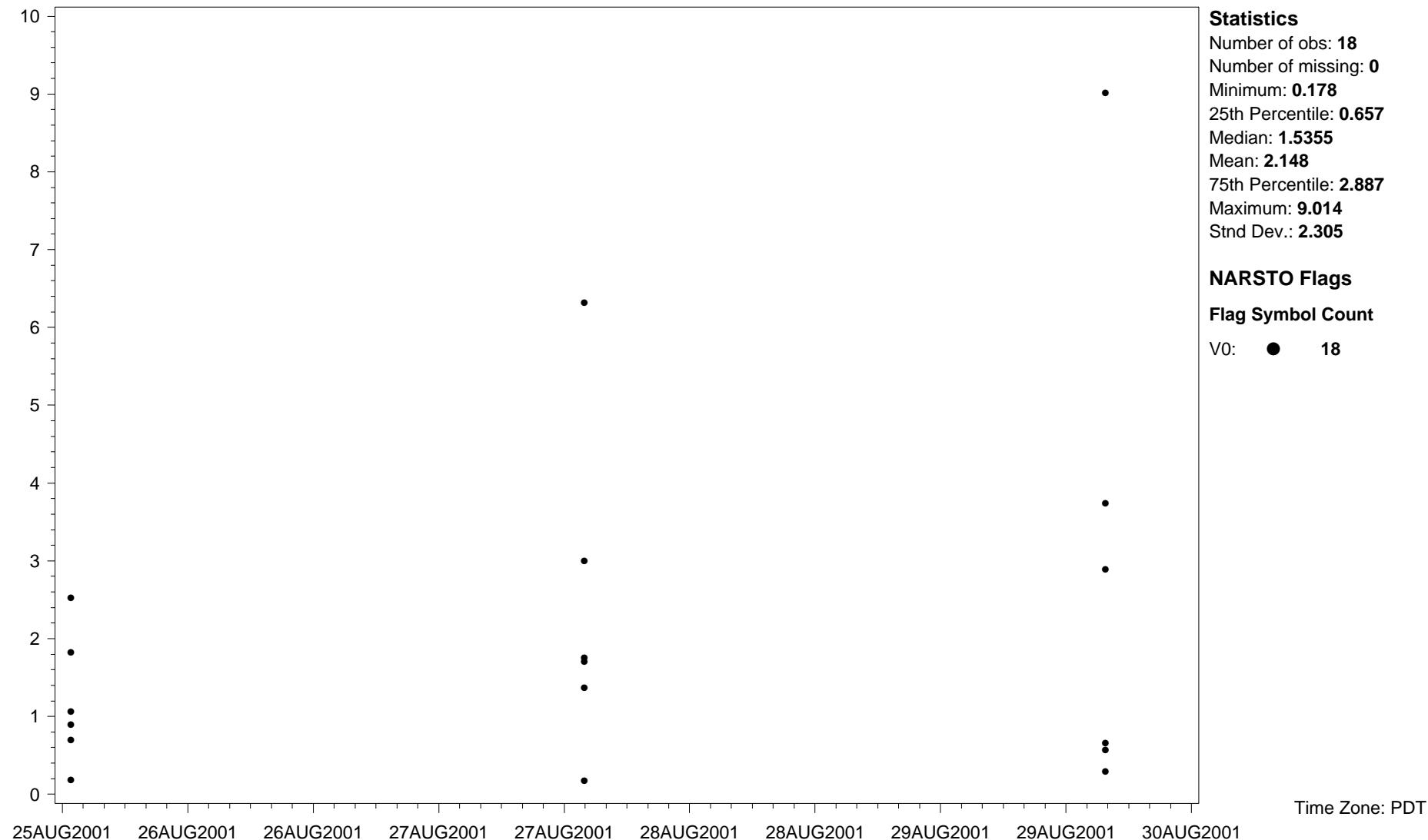
Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**



Site ID: **PC01CABCSMMT** Variable name: **Butanedioic acid, hydroxy-** Common Name: **Malic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C6915-15-7**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.057**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Butanedioic acid, hydroxy- (ng/m<sup>3</sup>)

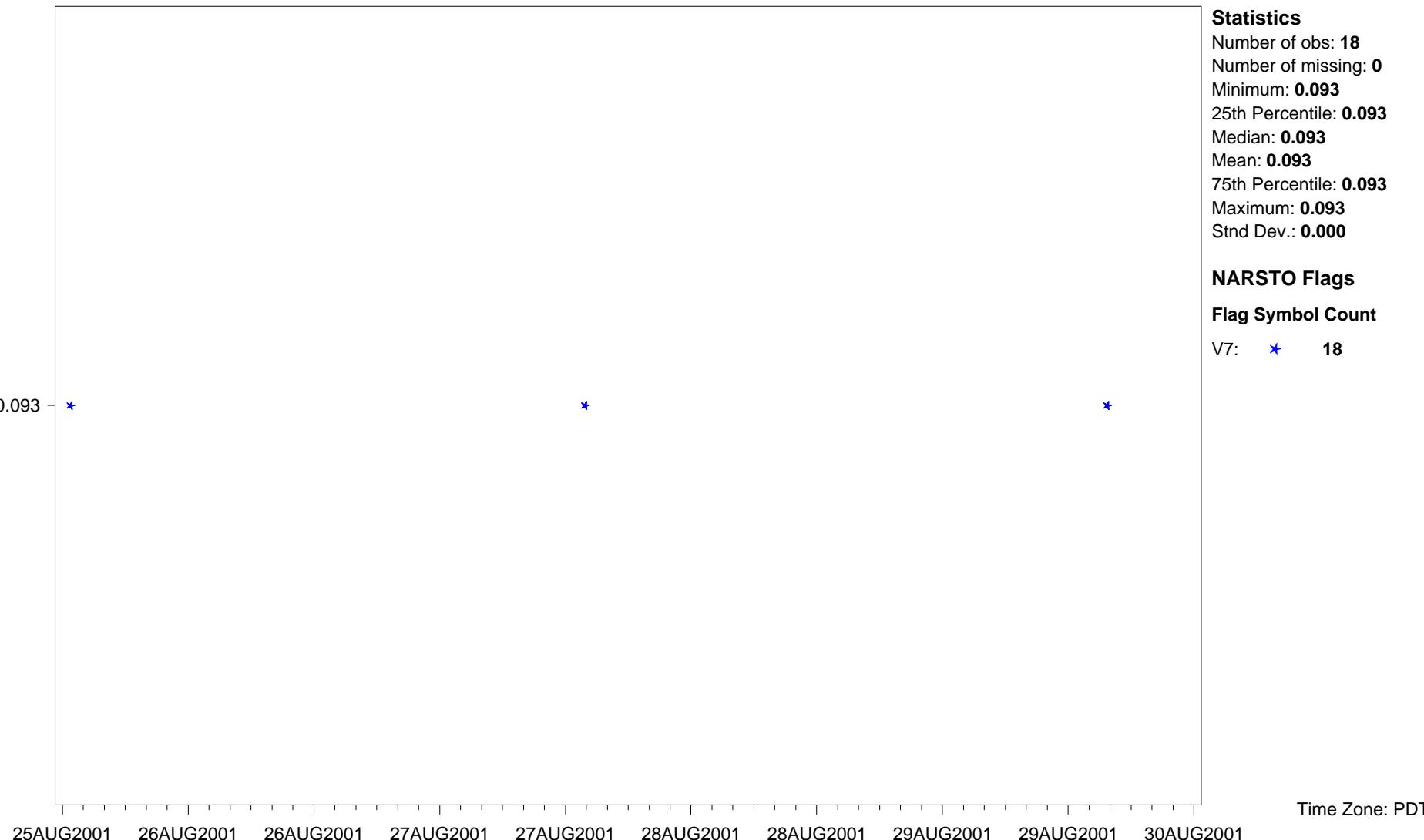


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Butanoic acid** Common Name: **Butanoic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C107-92-6**  
Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.093**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Butanoic acid (ng/m<sup>3</sup>)**Statistics**

Number of obs: **18**  
Number of missing: **0**  
Minimum: **0.093**  
25th Percentile: **0.093**  
Median: **0.093**  
Mean: **0.093**  
75th Percentile: **0.093**  
Maximum: **0.093**  
Stnd Dev.: **0.000**

**NARSTO Flags****Flag Symbol Count**

V7: \* 18



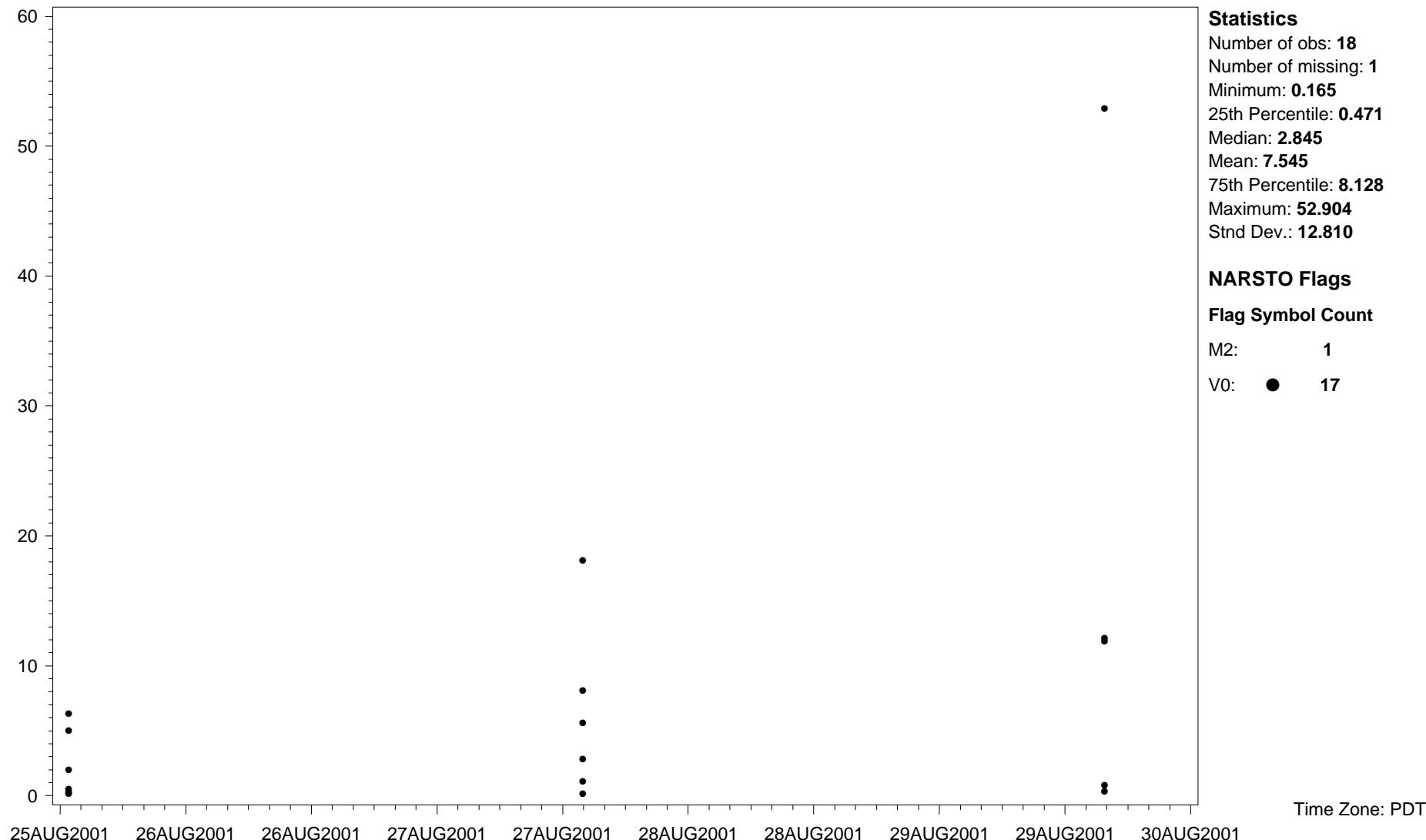
## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Ethanedioic acid** Units: **ng/m3** Sampling interval: **Grab** CAS ID: **C144-62-7** Observation type: **Particles**  
 Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
 Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.137**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**

Ethanedioic acid (ng/m3)

**Statistics**

Number of obs: **18**  
 Number of missing: **1**  
 Minimum: **0.165**  
 25th Percentile: **0.471**  
 Median: **2.845**  
 Mean: **7.545**  
 75th Percentile: **8.128**  
 Maximum: **52.904**  
 Stnd Dev.: **12.810**

**NARSTO Flags****Flag Symbol Count**

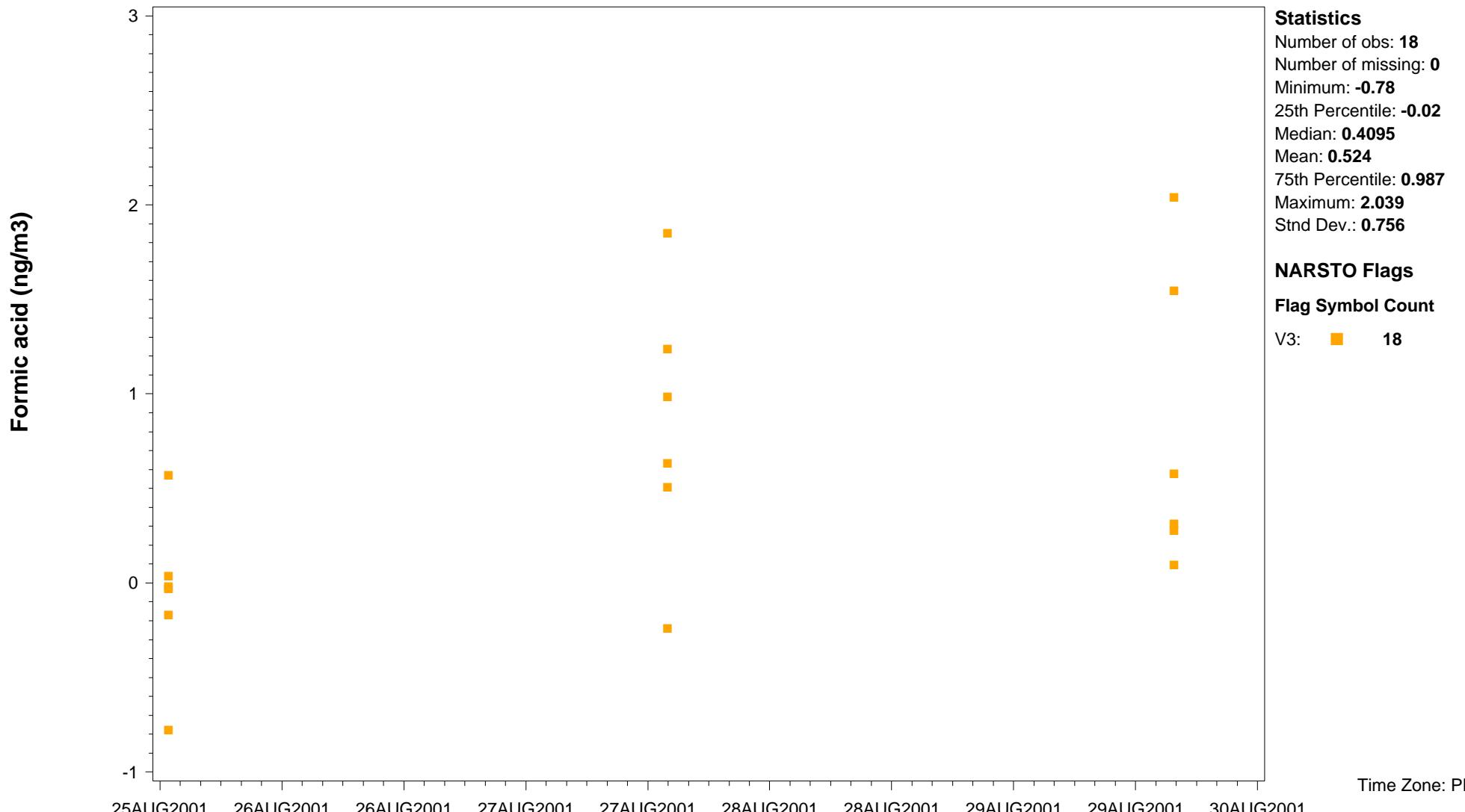
M2: **1**  
 V0: **● 17**

## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Formic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C64-18-6** Observation type: **Particles**  
 Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
 Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.03**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**

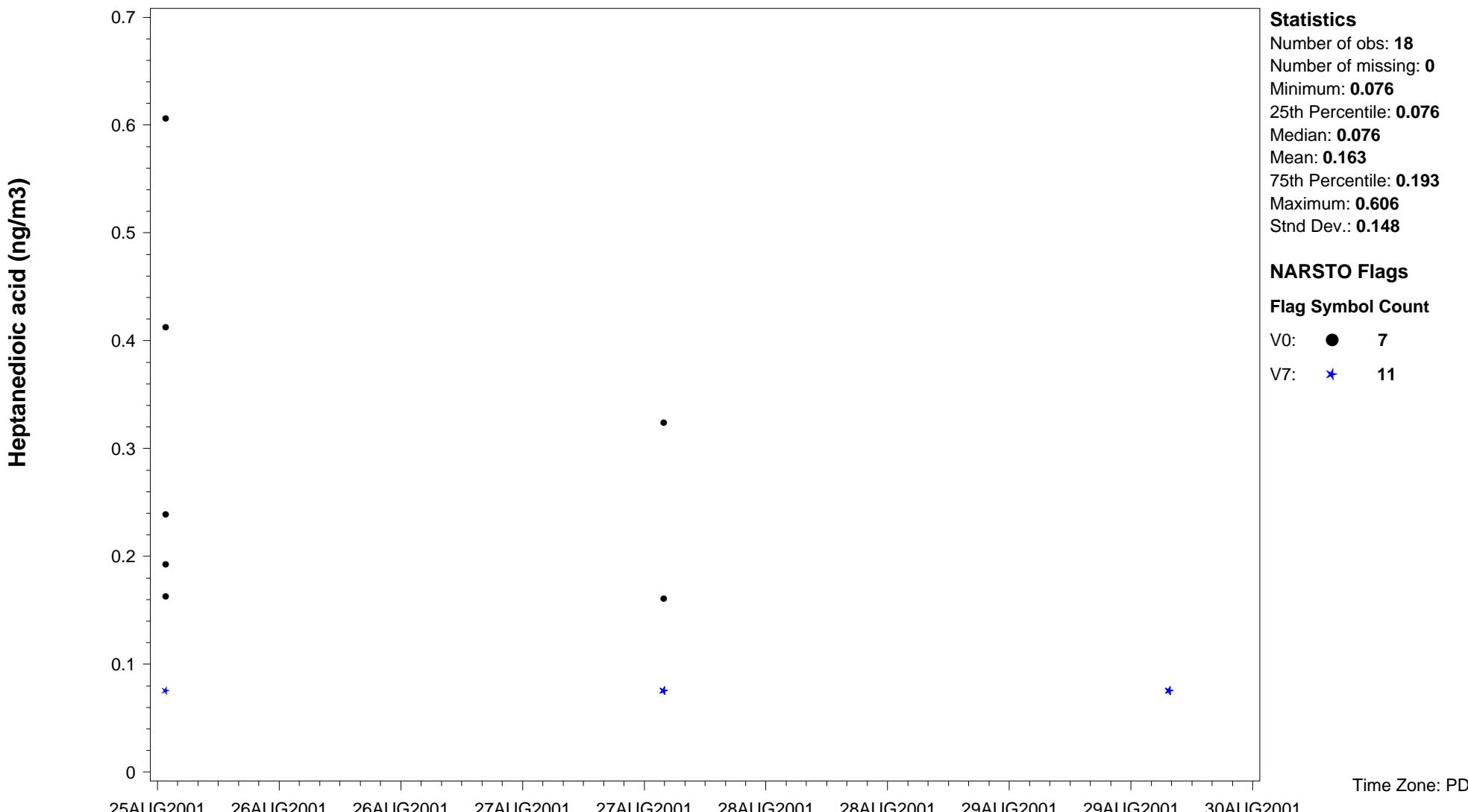


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Heptanedioic acid** Common Name: **Pimelic Acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C111-16-0**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.076**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

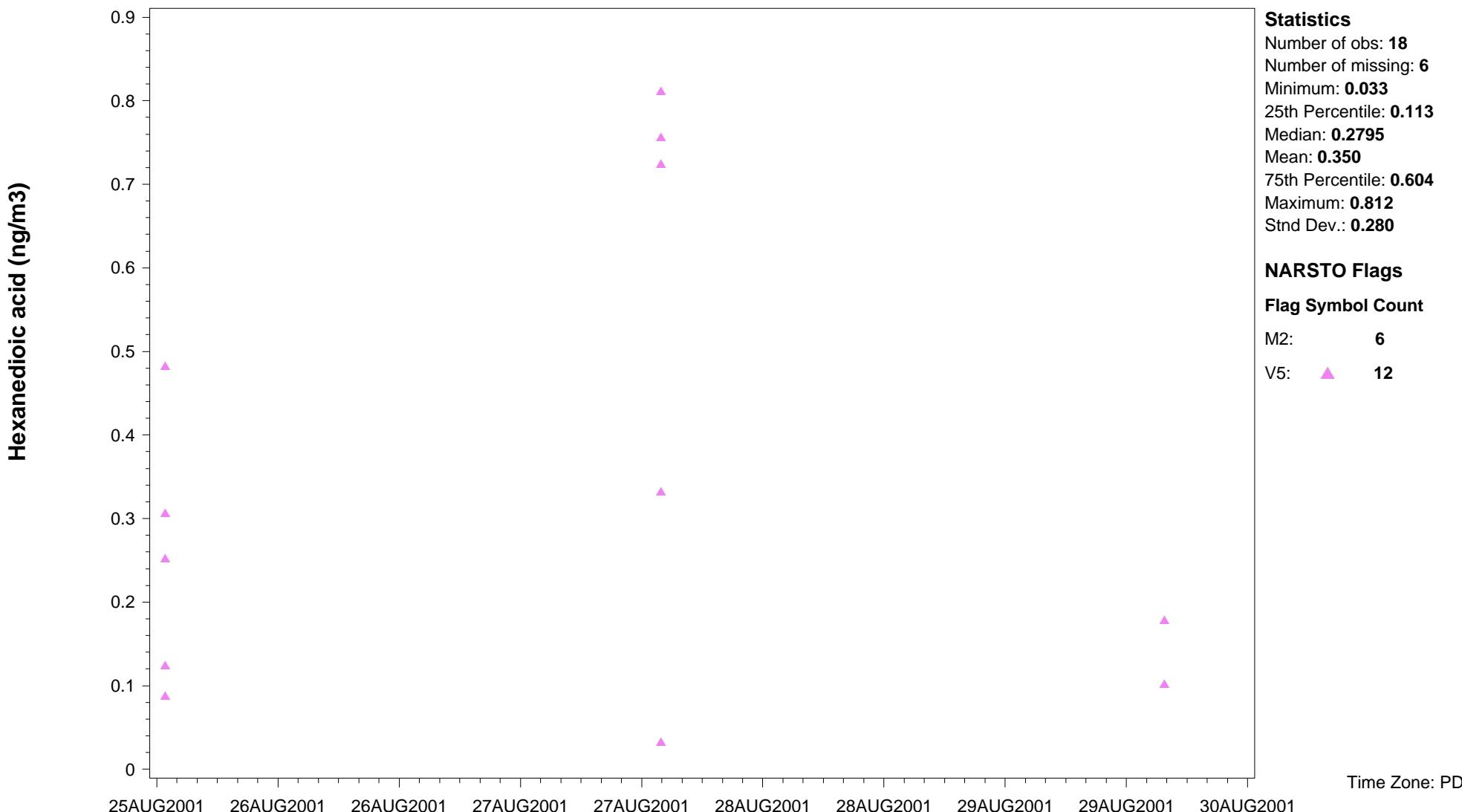


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Hexanedioic acid** Common Name: **Adipic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C124-04-9**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.079**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

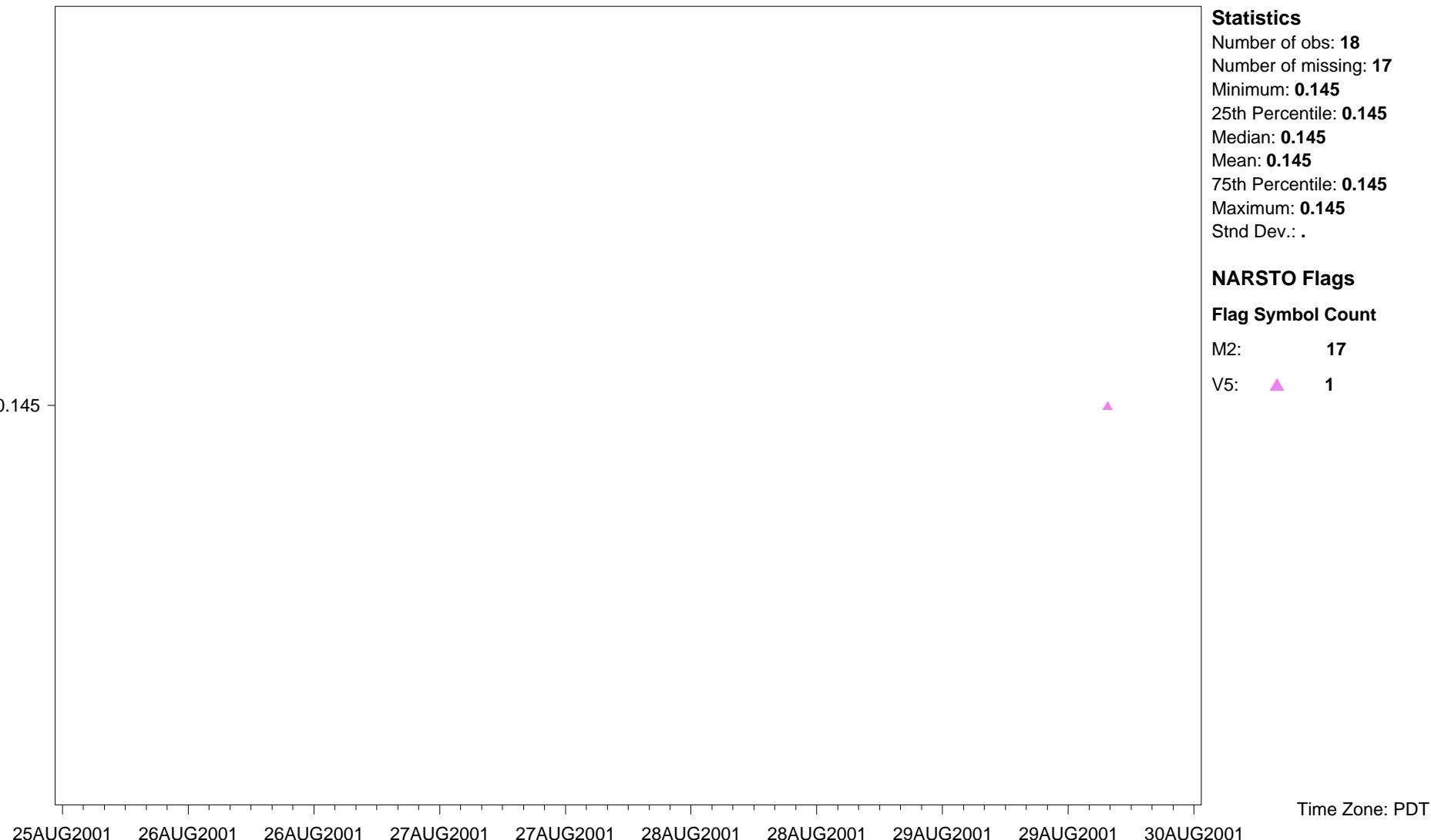


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Methanesulfonic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C75-75-2** Observation type: **Particles**  
Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.108**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**

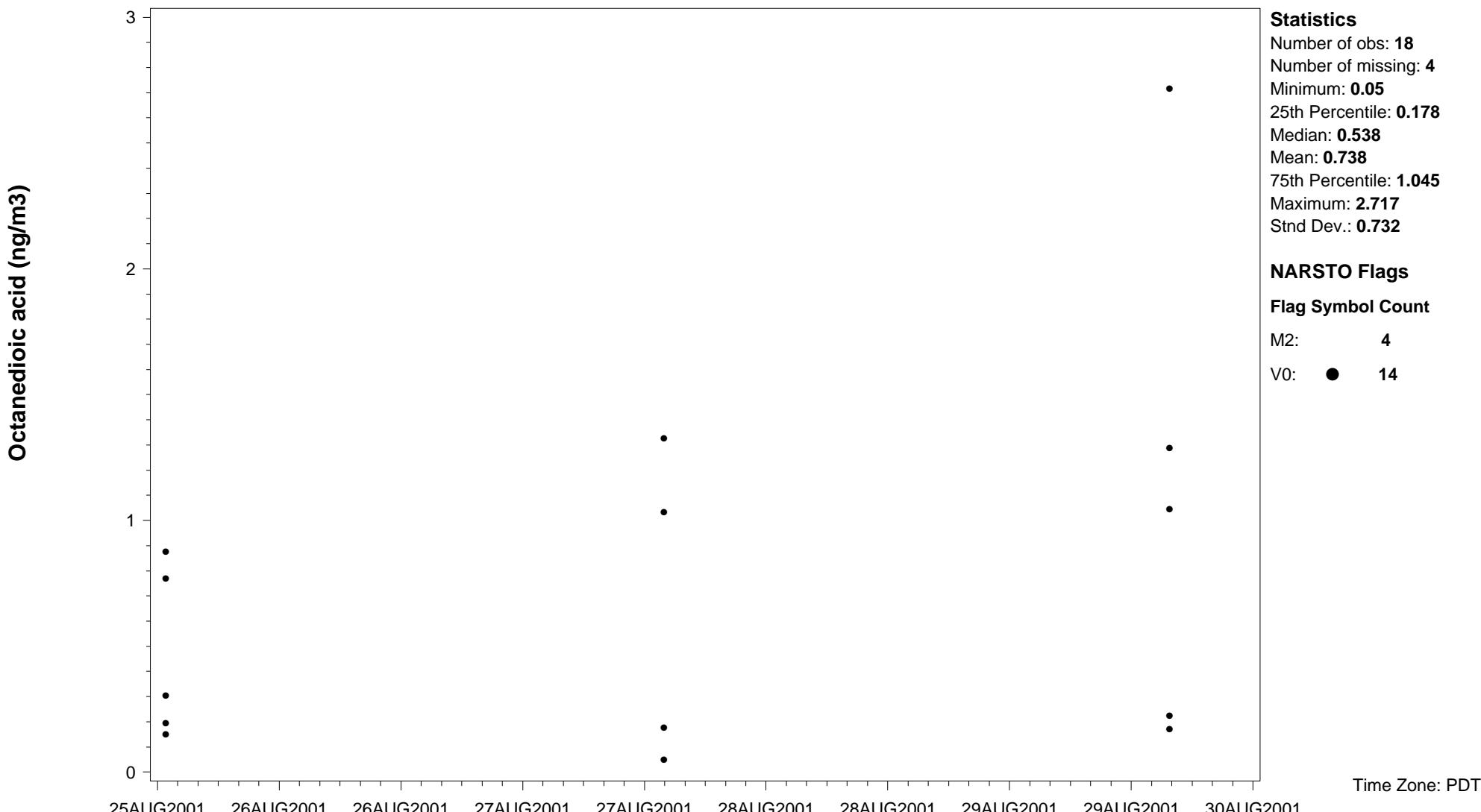
Methanesulfonic acid (ng/m<sup>3</sup>)

File Name: NATEM\_PAC2001\_SMMT\_J-R\_AROM-ACIDS-CAS0187-2001082516



Site ID: **PC01CABCSMMT** Variable name: **Octanedioic acid** Common Name: **Suberic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C505-48-6**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.066**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**



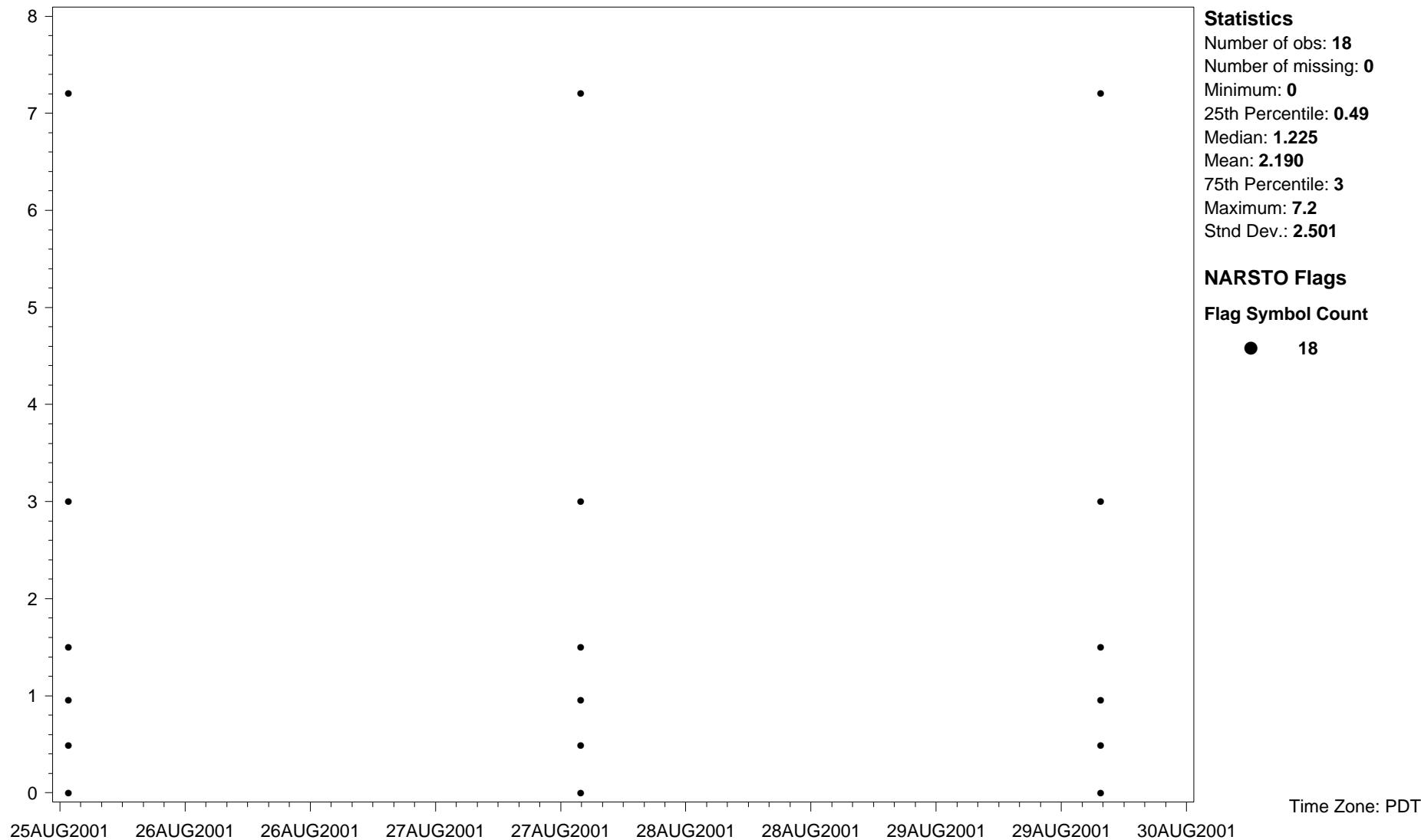
## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Particles: lower diameter bound** Units: **um** Sampling interval: **Grab** Observation type: **Supplementary data**  
Field sampling or measurement principle: **Impactor** Inlet type: **Impactor--direct** Volume standardization: **Ambient temperature and pressure**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Particles: lower diameter bound (um)



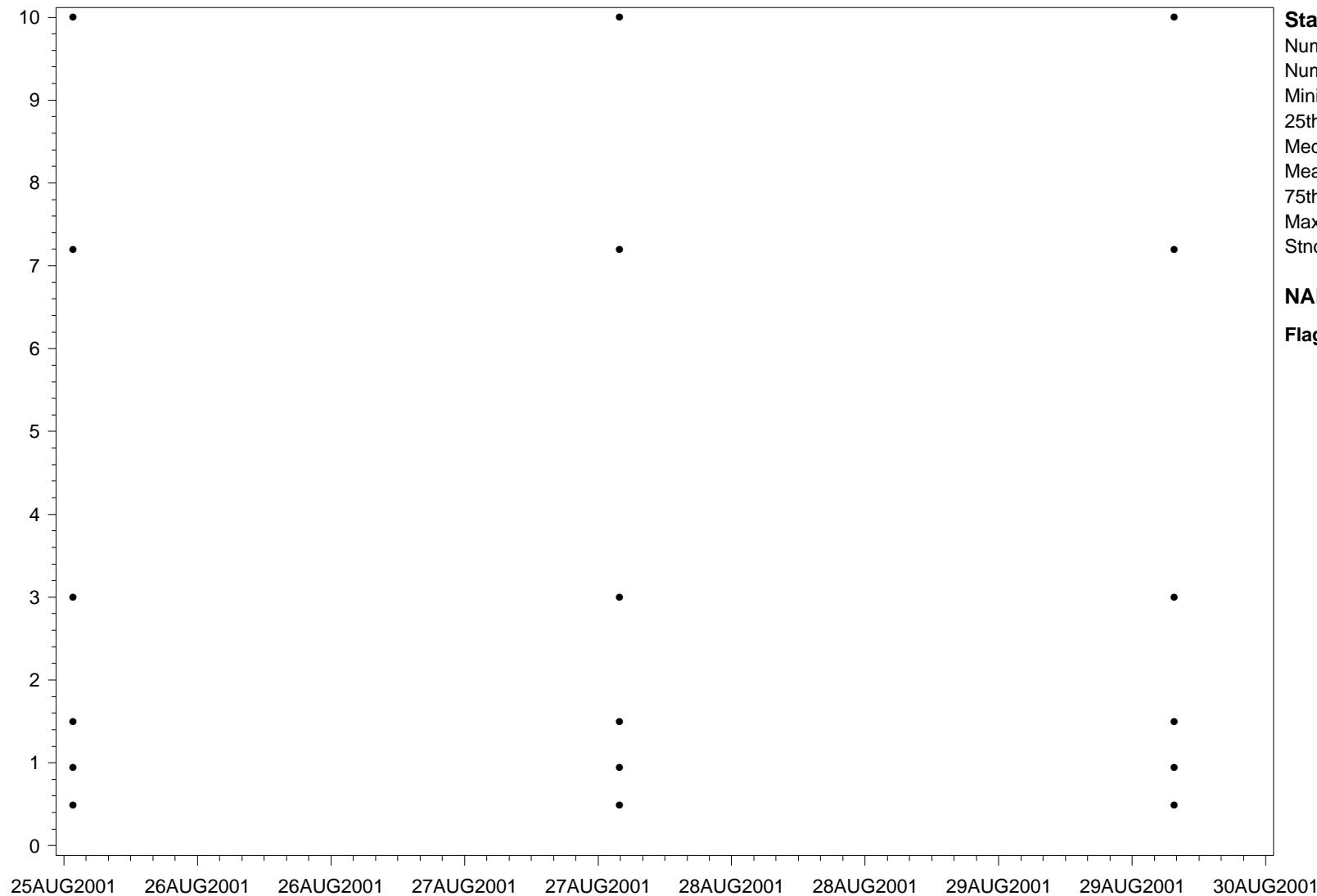
## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Particles: upper diameter bound** Units: **um** Sampling interval: **Grab** Observation type: **Supplementary data**  
Field sampling or measurement principle: **Impactor** Inlet type: **Impactor--direct**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Particles: upper diameter bound (um)

**Statistics**

Number of obs: **18**  
Number of missing: **0**  
Minimum: **0.49**  
25th Percentile: **0.95**  
Median: **2.25**  
Mean: **3.857**  
75th Percentile: **7.2**  
Maximum: **10**  
Stnd Dev.: **3.638**

**NARSTO Flags****Flag Symbol Count**

● 18

Time Zone: PDT

File Name:

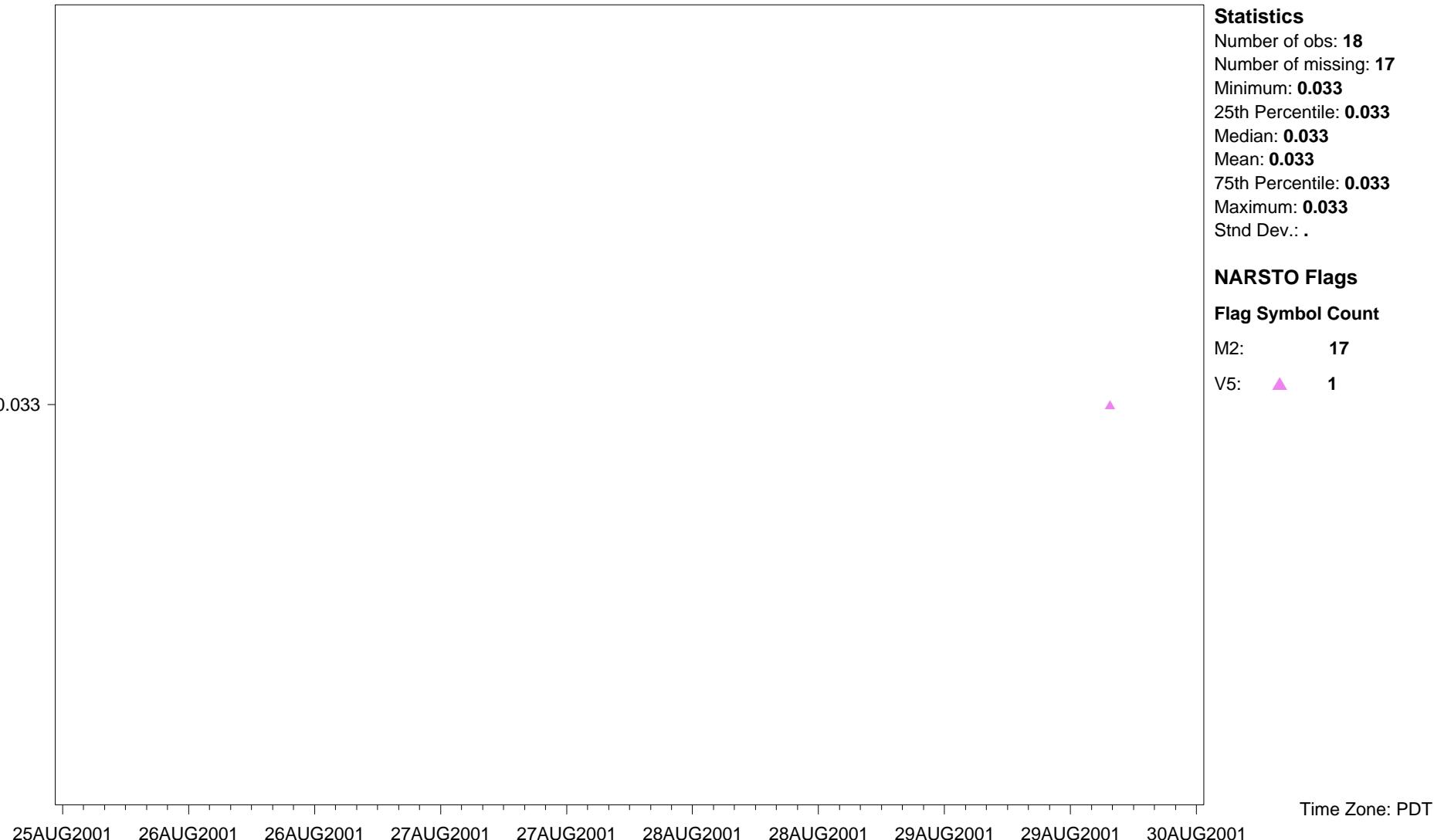
NATCHEM\_PAC2001\_SMMT\_J-R\_AROM-ACIDS-CASO187\_2001082516 Atmospheric Science Data Center  
<http://eosweb.larc.nasa.gov>

## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Pentanedioic acid** Common Name: **Glutaric acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C110-94-1**  
Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.08**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Pentanedioic acid (ng/m<sup>3</sup>)

File Name: NATEM\_PAC2001\_SMMT\_J-R\_AROM-ACIDS-CAS0187\_2001082506

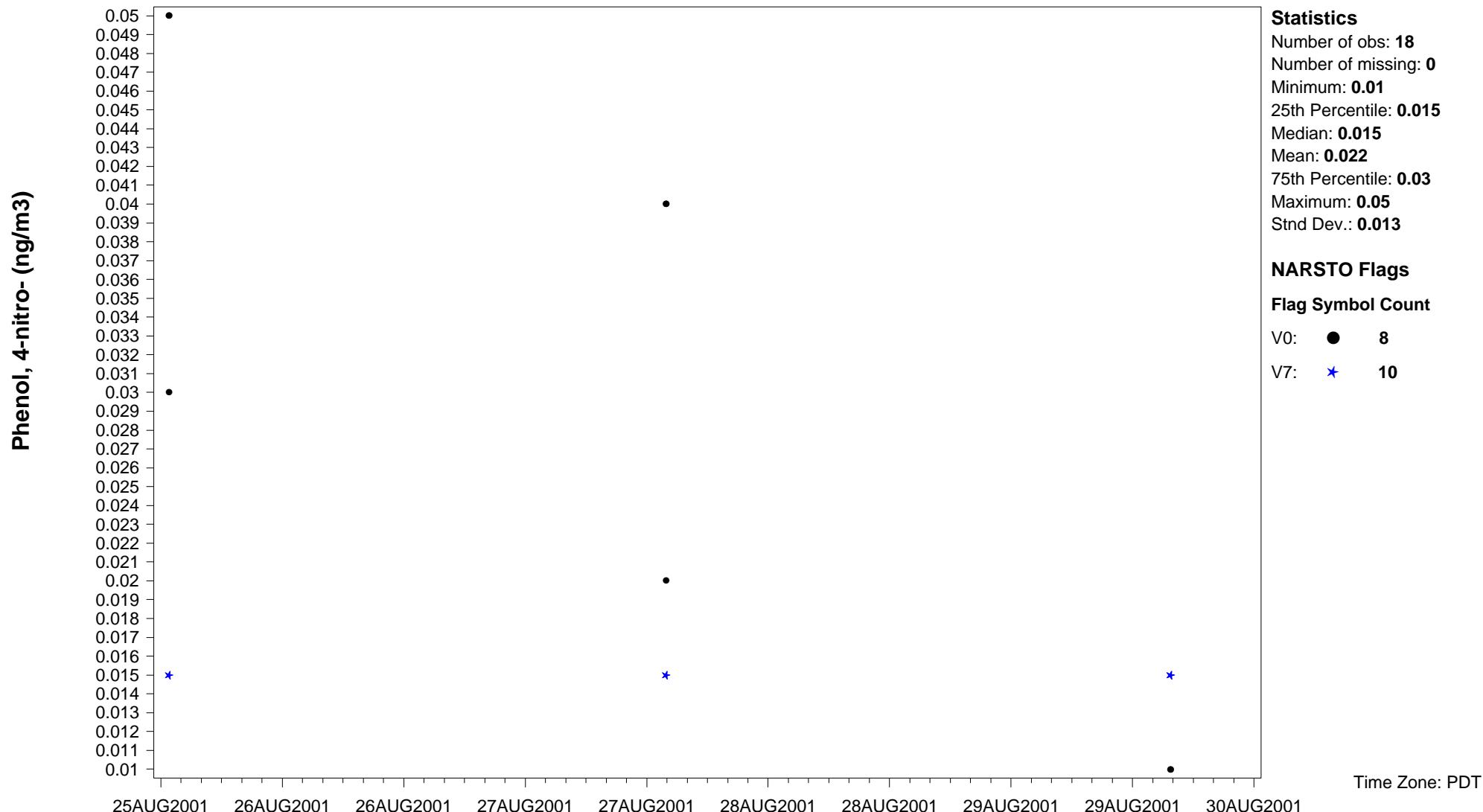


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Phenol, 4-nitro-** Common Name: **Phenol, 4-nitro-** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C100-02-7**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **405**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.015**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

**Statistics**

Number of obs: **18**  
 Number of missing: **0**  
 Minimum: **0.01**  
 25th Percentile: **0.015**  
 Median: **0.015**  
 Mean: **0.022**  
 75th Percentile: **0.03**  
 Maximum: **0.05**  
 Stnd Dev.: **0.013**

**NARSTO Flags****Flag Symbol Count**

V0: ● 8  
 V7: \* 10

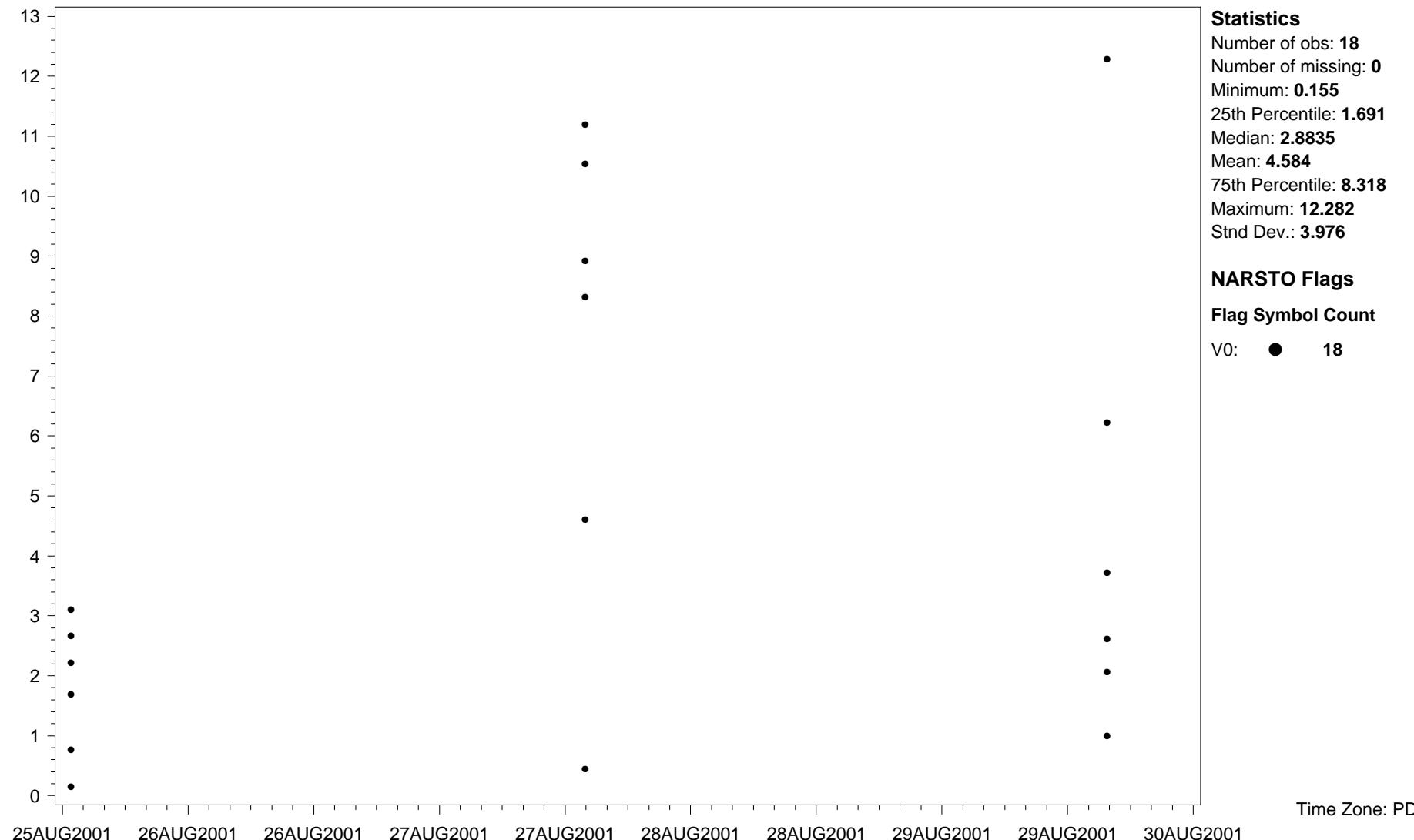


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Propanedioic acid** Common Name: **Malonic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C141-82-2**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.083**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

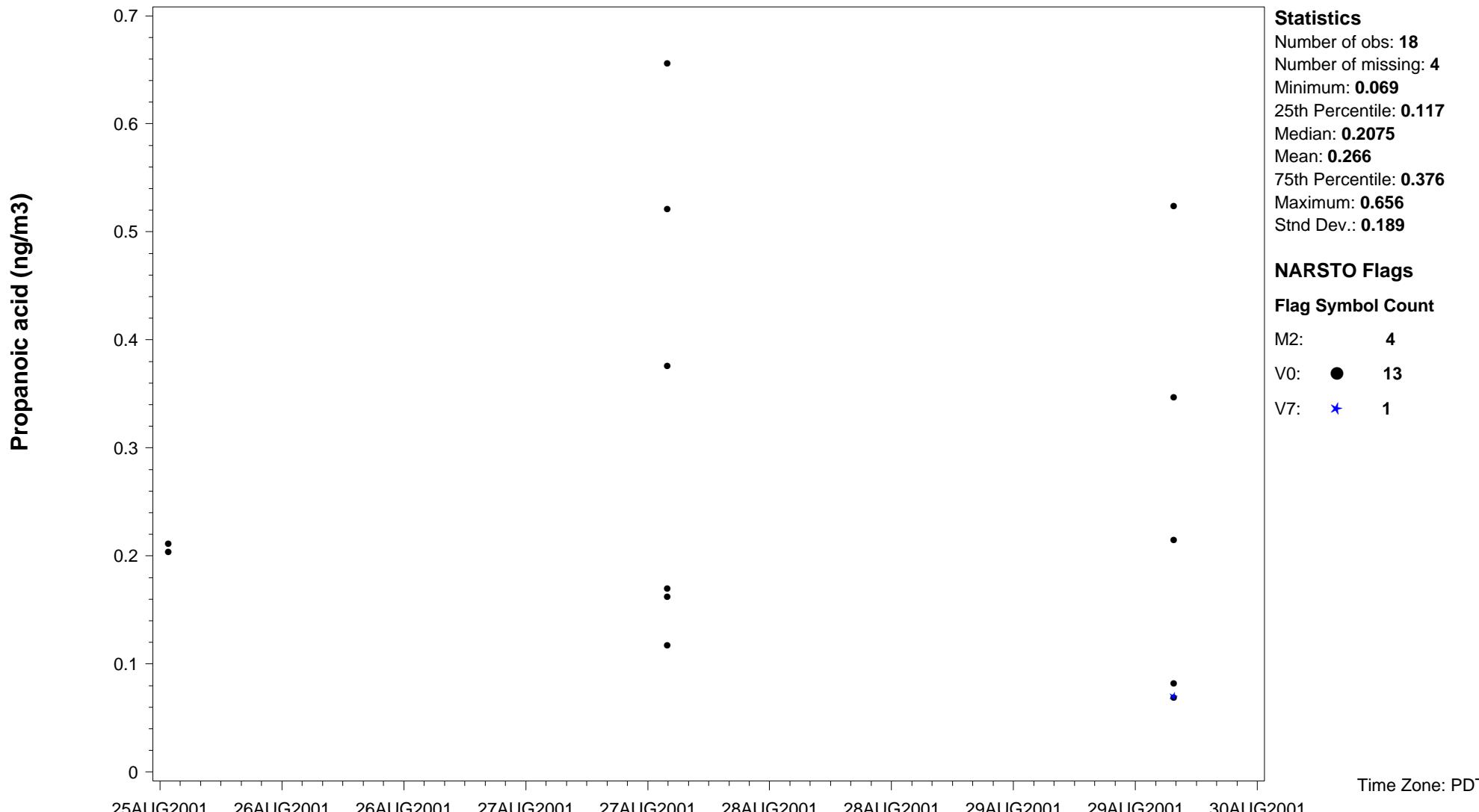
Propanedioic acid (ng/m<sup>3</sup>)

## NAtChem Time Series Plot

21MAR2005

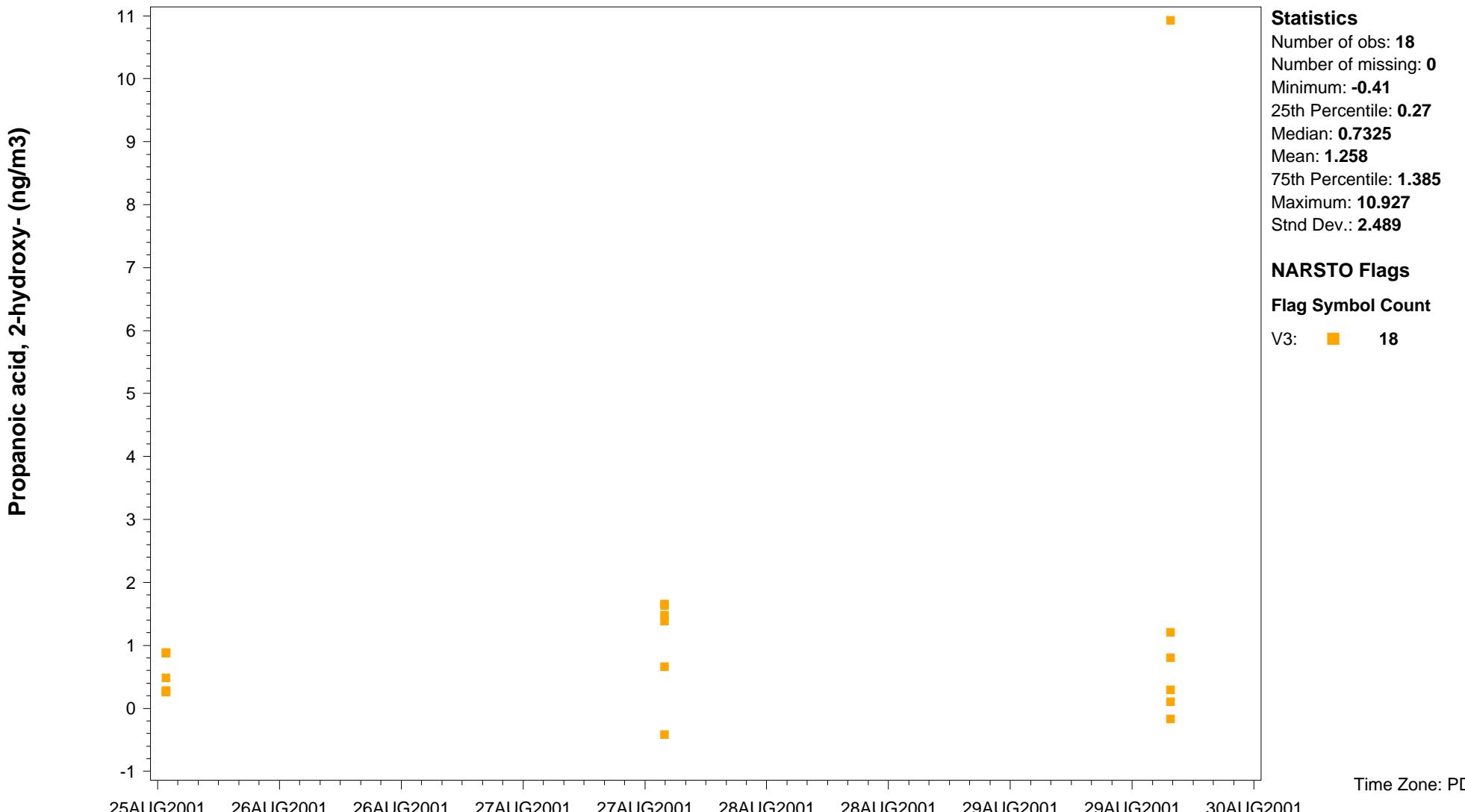
Site ID: **PC01CABCSMMT** Variable name: **Propanoic acid** Common Name: **Propionic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C79-09-4**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.07**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**



Site ID: **PC01CABCSMMT** Variable name: **Propanoic acid, 2-hydroxy-** Common Name: **Lactic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C50-21-5**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.113**

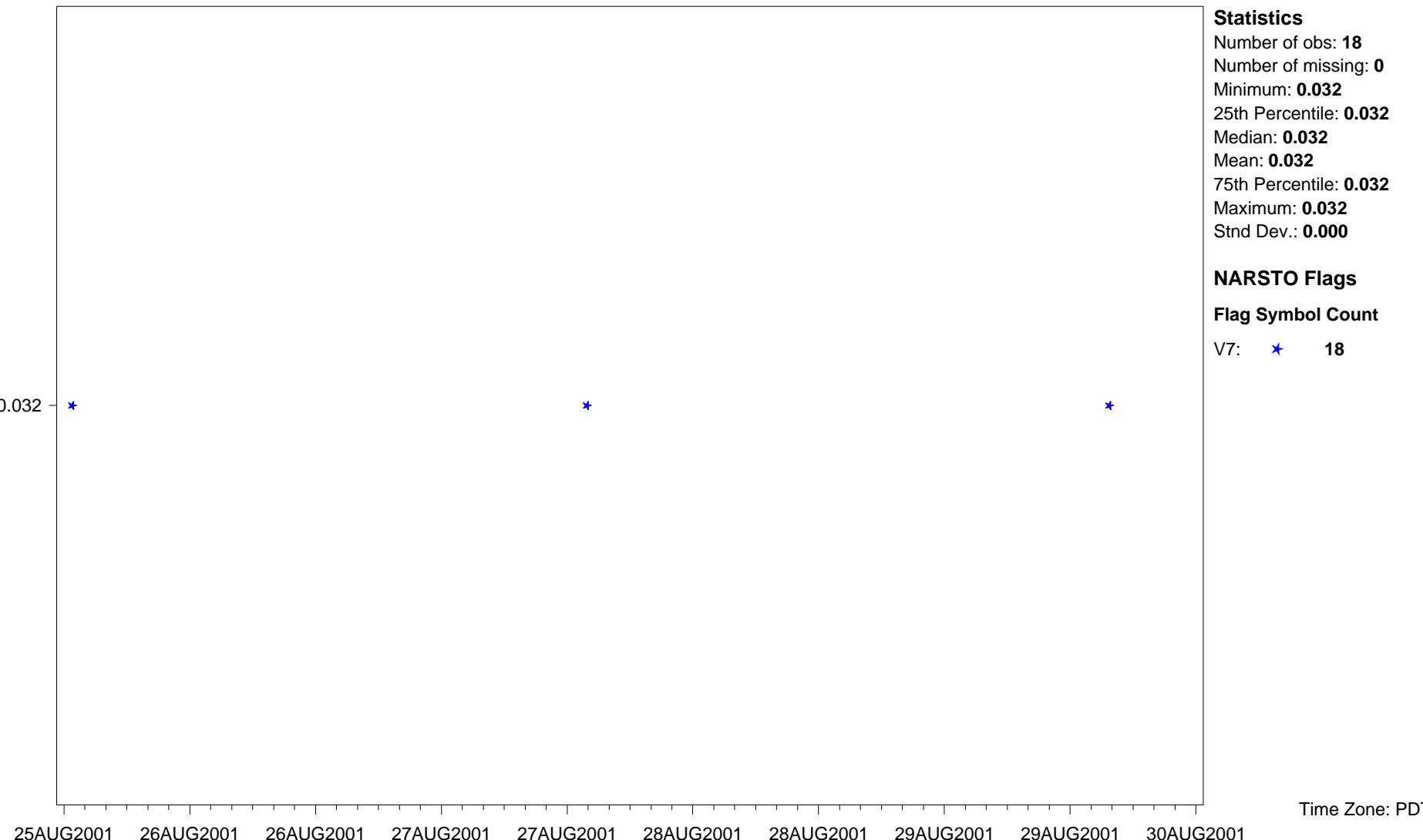
Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**



Site ID: **PC01CABCSMMT** Variable name: **Propanoic acid, 2-hydroxy-2-methyl-** Common Name: **2-Hydroxyisobutyric acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab**  
CAS ID: **C594-61-6** Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.032**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.247 deg.** Start Date: **2001-08-25** End Date: **2001-08-30**

Propanoic acid, 2-hydroxy-2-methyl- (ng/m<sup>3</sup>)



Time Zone: PDT

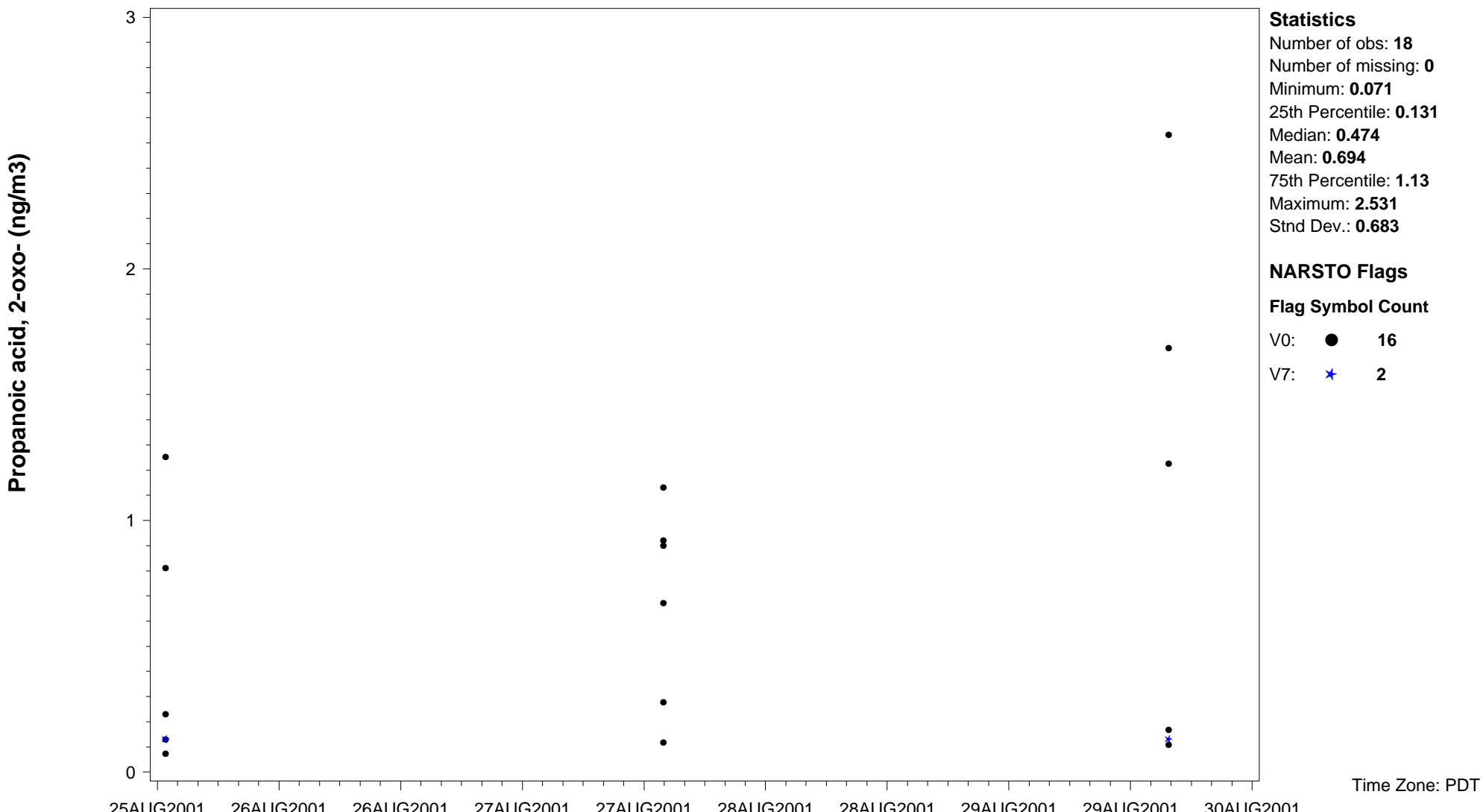


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Propanoic acid, 2-oxo-** Common Name: **Pyruvic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C127-17-3**  
 Observation type: **Particles** Particle diameter--lower bound (UM): **Varies--see variable Part**  
 Particle diameter--upper bound (UM): **Varies--see variable Part** Particle diameter--median (UM): **Undetermined**  
 Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.131**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**



Time Zone: PDT

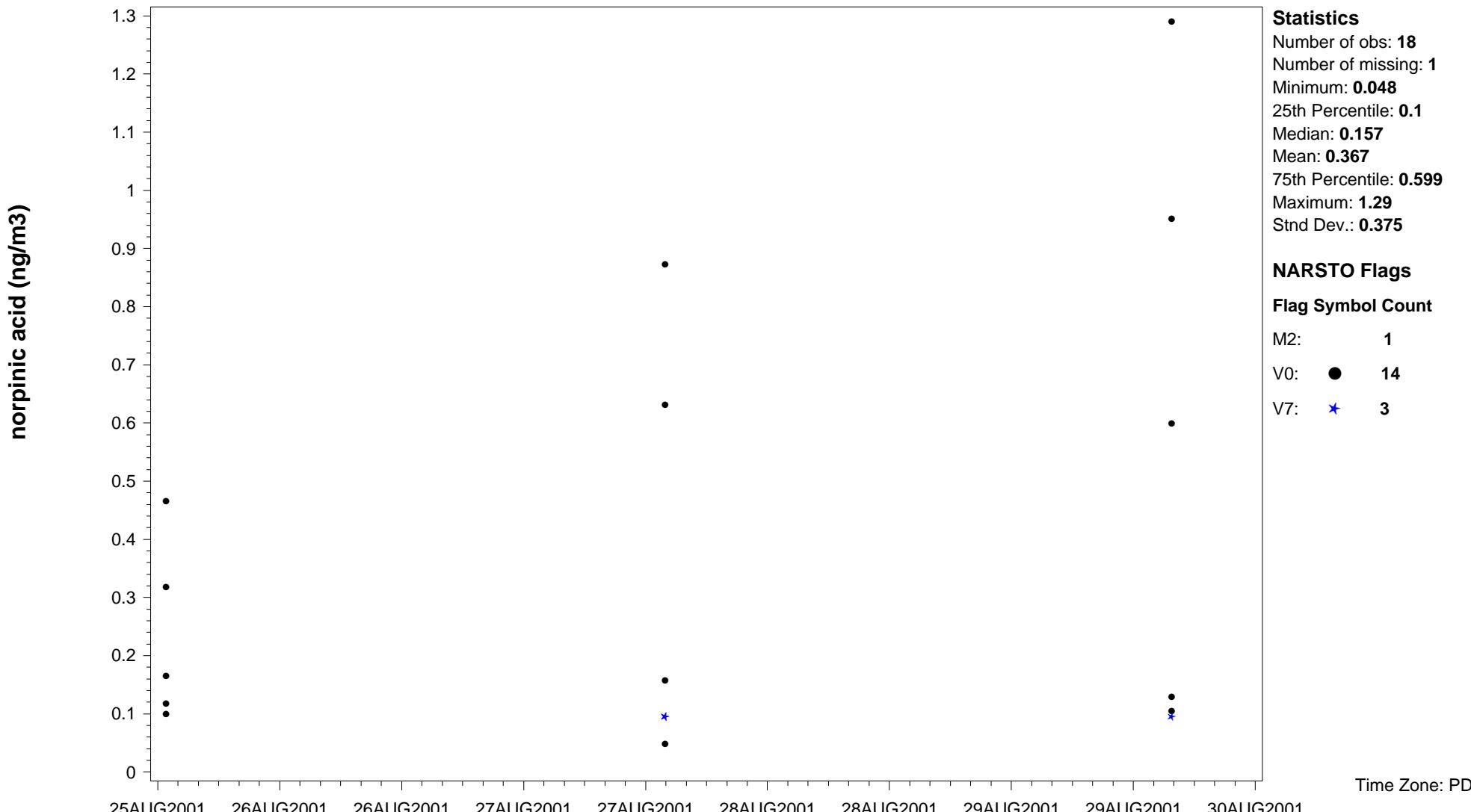


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **norpinic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C473-69-8** Observation type: **Particles**  
 Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
 Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.095**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**

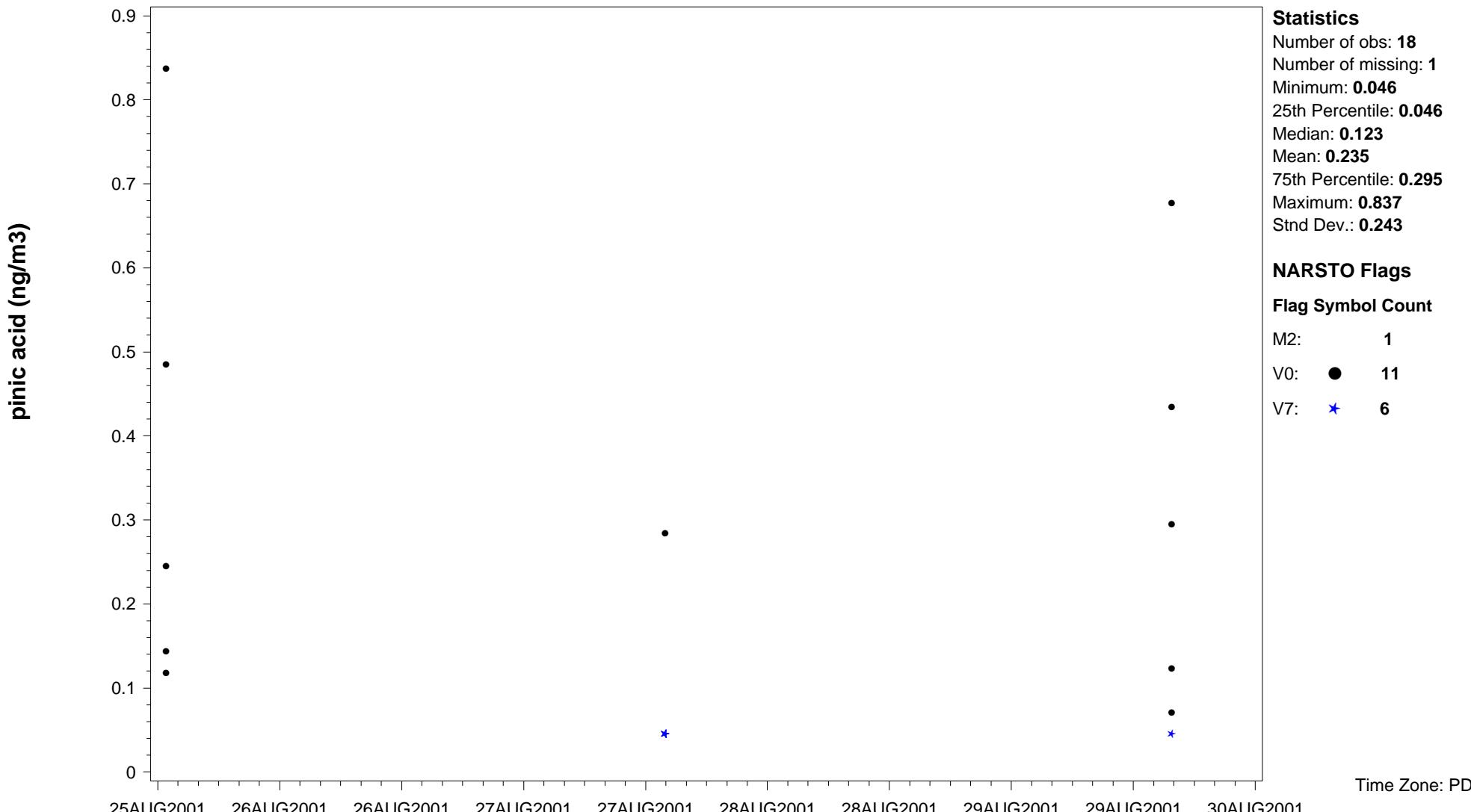


## NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **pinic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C473-73-4** Observation type: **Particles**  
 Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
 Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
 Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
 Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
 Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.046**

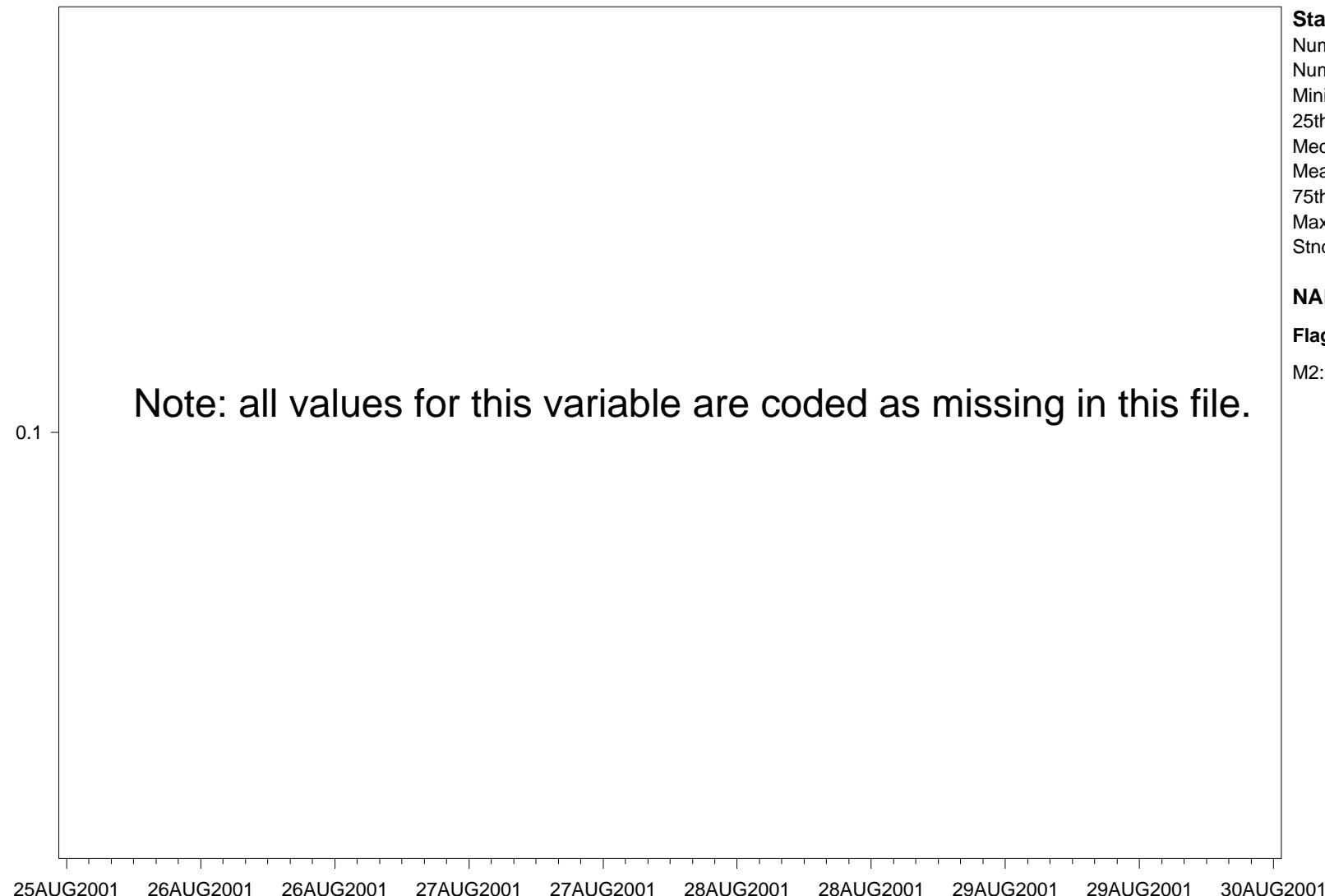
Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**



Site ID: **PC01CABCSMMT** Variable name: **pinonic acid** Units: **ng/m<sup>3</sup>** Sampling interval: **Grab** CAS ID: **C473-72-3** Observation type: **Particles**  
Particle diameter--lower bound (UM): **Varies--see variable Part** Particle diameter--upper bound (UM): **Varies--see variable Part**  
Particle diameter--median (UM): **Undetermined** Field sampling or measurement principle: **Impactor** Medium: **Quartz** Inlet type: **Impactor--direct**  
Laboratory analytical method: **Capillary electrophoresis** Sample preparation: **Organic extraction** Blank Correction: **Blank corrected**  
Volume standardization: **Ambient temperature and pressure** Sampling Height above ground (m): **3** Wavelength (NM): **243**  
Instrument name and model number: **HIVOL TE-6070-BL with Cascade Impactor** Detection Limit: **0.045**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.247 deg.** Start Date:**2001-08-25** End Date:**2001-08-30**

pinonic acid (ng/m<sup>3</sup>)



Time Zone: PDT

File Name: NATEM\_PAC2001\_SMMT\_J-R\_AROM-ACIDS-CASO147\_2001082506 Atmospheric Science Data Center  
http://eosweb.larc.nasa.gov

